



# ***SWARTLAND MUNICIPALITY***

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## *Annual Water Services Development Plan Performance- and Water Services Audit Report*

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*as directed by the Water Services Act (Act 108 of 1997) and the Regulations relating to Compulsory National Standards and Measures to Conserve Water*

***FY 2024/2025  
20 October 2025***

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SWARTLAND MUNICIPALITY



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## SWARTLAND MUNICIPALITY

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Version Control:

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| Draft    | Draft 2024/2025 Annual WSDP Performance- and Water Services Audit Report | 20 October 2025    | Project No P09260                                                                                                        |
| Approval | Final 2024/2025 Annual WSDP Performance- and Water Services Audit Report | With Annual Report | Council Resolution for the approval of the Water Services Audit Report will be forwarded to the DWS by the Municipality. |

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### PROJECT P09260 - SWARTLAND MUNICIPALITY: ANNUAL WSDP PERFORMANCE AND WATER SERVICES AUDIT REPORT FOR 2024/2025

| REV   | DESCRIPTION                       | ORIG                | REVIEW                 | IX ENGINEERS APPROVAL | DATE | CLIENT APPROVAL | DATE |
|-------|-----------------------------------|---------------------|------------------------|-----------------------|------|-----------------|------|
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| Final | Final Report for Council approval | R Kuffner<br>Author | JT Human<br>A Reviewer | Approval              |      | Approval        |      |

## FOREWORD:

Swartland Municipality is required in terms of Section 18 of the Water Services Act, 1997 (Act No.108 of 1997), as well as the “Regulations relating to compulsory national standards and measures to conserve water”, as issued in terms of sections 9(1) and 73(1)(j) of the Water Services Act, to report on the implementation of its WSDP during each financial year and to include a water services audit in such an annual report.

The WSDP Performance- and Water Services Audit is designed to monitor the compliance of Swartland Municipality with these regulations. It also assists the communities within Swartland Municipality's Management Area and the DWS to assess how well the Municipality is performing relative to their stated intentions and their capacity. The WSDP Performance- and Water Services Audit Report can be seen as an annexure to the Municipality's Annual Report. The Annual Report is compiled as required by the Local Government Municipal Systems Act, Act no 32 of 2000 (Section 46) and the Local Government: Municipal Finance Management Act, Act no 56 of 2003 (Section 121).

Swartland Municipality's Vulnerability Index for 2024 was indicated as 0.15 “Low Vulnerability”. The only one area of concern evident from the 2024 assessment is Financial Asset Management, which obtained a score of 50% (High Vulnerability).

The water and sanitation services of Swartland Municipality is managed in a financially sustainable manner, with a surplus generated on the operation and maintenance budgets of both services for the last eleven financial years. The current operational cost for water services was R16-17/ KI and for sanitation services it was R18-56 / KI for the 2024/2025 financial year.

The budgets allocated towards the refurbishment / replacement of the existing old water and sewerage infrastructure needs to be increased. The total CRC of the water and sewerage infrastructure is R4 091 895 740 and an annual budget of at least R81 837 913 is required for the refurbishment / replacement of the old water and sewerage infrastructure. A budget of approximately 2% of the CRC of the infrastructure per annum should be allocated towards the refurbishment / replacement of the old existing water and sewerage infrastructure. In the case of the operations and maintenance of the systems, a budget of approximately 1% to 2% of the CRC of the infrastructure is typically required to ensure that the systems remain in good condition.

Swartland Municipality successfully completed various capital projects over the last financial year. The capital budget expenditure, for the 2024/2025 financial year, was R42.191 million (92.8% of the budget) for the water infrastructure projects and R31.730 million (87.7% of the budget) for the sewerage infrastructure projects.

The implementation of Swartland Municipality's Water Demand Management Strategy has been extremely successful, and the Municipality was able to reduce the water requirements of the towns significantly. The average annual water requirement growth over the period 2001/2002 to 2024/2025 was 1.98 %/a. The overall NRW for all the water distribution systems was 1 401 MI (22.9%) and the water losses were 1 270 MI (20.8%) for the 2024/2025 financial year, which are below DWS's NRW target of 30% and just above the water losses target of 20%.

The Western Cape experienced a severe drought over the period 2015 to 2017, with some relief during the winter months of the following years. This drought over the period 2015 to 2017 impacted severely on the assurance of bulk water supply by the West Coast District Municipality to Swartland Municipality from the WCWSS and the yield of the Municipality's own existing surface and groundwater sources. WC/WDM measures to lower the current water requirements and the augmentation of the West Coast District Municipality's existing water sources, as well as the augmentation of Swartland Municipality's own water resources with groundwater were therefore critical over this period.

Operational Sampling programmes are implemented by the West Coast District Municipality at their two bulk WTWs. Compliance Water Quality Monitoring Programmes are also implemented by the West Coast District Municipality and the Swartland Municipality throughout the water distribution systems. Operational and Compliance Wastewater Quality Monitoring Programmes are implemented by Swartland Municipality at their WWTWs.

The water quality of all the water distribution systems in Swartland Municipality was either “Excellent” or “Good”, according to the SANS0241 classification, except for Darling and Yzerfontein that were “Unacceptable” for Operational Efficiency (due to pH failures) and Koringberg that was “Unacceptable” for Acute Health Microbiological (due to E.Coli failures). The overall percentage compliance of the water quality samples taken over the period July to June for the last three financial years are indicated in the table below for all the water distribution systems combined.

| Overall percentage compliance of the water quality samples taken over the period July to June for the last three financial years |                  |       |       |          |       |       |                    |       |       |               |       |       |                            |       |       |
|----------------------------------------------------------------------------------------------------------------------------------|------------------|-------|-------|----------|-------|-------|--------------------|-------|-------|---------------|-------|-------|----------------------------|-------|-------|
| Distribution System                                                                                                              | Acute Health (%) |       |       |          |       |       | Chronic Health (%) |       |       | Aesthetic (%) |       |       | Operational Efficiency (%) |       |       |
|                                                                                                                                  | Microbiological  |       |       | Chemical |       |       |                    |       |       |               |       |       |                            |       |       |
|                                                                                                                                  | 24/25            | 23/24 | 22/23 | 24/25    | 23/24 | 22/23 | 24/25              | 23/24 | 22/23 | 24/25         | 23/24 | 22/23 | 24/25                      | 23/24 | 22/23 |
| All Systems                                                                                                                      | 98.4             | 98.9  | 98.3  | 100.0    | 100.0 | 100.0 | 99.9               | 99.9  | 100.0 | 99.9          | 99.9  | 99.7  | 93.8                       | 94.7  | 93.8  |

Note: Unacceptable (According to SANS241-2:2015, Table 4, population > 100 000 persons)

The overall percentage compliances of the final effluent samples taken over the last three financial years are summarised in the table below.

| Overall percentage compliance of the final effluent samples taken over the last three financial years |                     |       |       |              |       |       |              |       |       |
|-------------------------------------------------------------------------------------------------------|---------------------|-------|-------|--------------|-------|-------|--------------|-------|-------|
| WWTW                                                                                                  | Microbiological (%) |       |       | Chemical (%) |       |       | Physical (%) |       |       |
|                                                                                                       | 24/25               | 23/24 | 22/23 | 24/25        | 23/24 | 22/23 | 24/25        | 23/24 | 22/23 |
| All WWTWs                                                                                             | 62.4                | 63.1  | 57.1  | 64.8         | 66.0  | 59.3  | 74.2         | 74.6  | 74.5  |

A comprehensive Performance Management System and Customer Services and Complaints system are also in place. The SDBIP is the process plan and performance indicator / evaluation process for the execution of the budget. The SDBIP is being used as a management, implementation and monitoring tool that assists and guide the Executive Mayor, Councillors, Municipal Manager, Senior Managers and the community. The plan serves as an input to the performance agreements of the Municipal Manager and Directors. It also forms the basis for the monthly, quarterly, mid-year and the annual assessment report and performance assessments of the Municipal Manager and Directors.

The Municipality has maintained a high and consistent level of service to its urban water consumers. After hour emergency requests are being dealt with by the control room on a twenty-four hour per day basis. Requests are furthermore captured on an electronic mail or works-order system to ensure the execution thereof.

The 2025 Green-, Blue- and No Drop assessment results from the DWS are not yet available. Swartland Municipality however performed excellent with regard to DWS’s 2023 Blue Drop Assessment. The Withoogte System received Blue Drop status with a score of 96.48%. The Swartland system received a Blue Drop score of 93.33%. Swartland Municipality achieved an “Excellent” score of 91% for the 2023 No Drop Assessment and was acknowledged as one of the top performing WSAs in the country. The Municipality is performing above average with regard to wastewater quality management, with an overall Green Drop Score of 89% for DWS’s 2021 Green Drop assessment. Swartland Municipality also received their 2023 Green Drop Risk Ratings, as included in the 2023 Green Drop Progress Report. The overall Cumulative Risk Rating of Swartland Municipality was 51.2% (Medium Risk).





## SWARTLAND MUNICIPALITY

### WATER SERVICES AUDIT FOR 2024/2025

| ITEM                                                                    | DESCRIPTION | PAGE |
|-------------------------------------------------------------------------|-------------|------|
| FOREWORD .....                                                          |             | ii   |
| LIST OF TABLES AND FIGURES .....                                        |             | vi   |
| ABBREVIATIONS AND DEFINITIONS .....                                     |             | xi   |
| KEY TERMS AND INTERPRETATIONS .....                                     |             | xiv  |
| EXECUTIVE SUMMARY .....                                                 |             | xvii |
| BACKGROUND .....                                                        |             | 1    |
| Appointment.....                                                        |             | 1    |
| Purpose .....                                                           |             | 1    |
| SECTION A: WATER SERVICES AUTHORITY PROFILE .....                       |             | 4    |
| A.1. Map of Water Services Authority Area of Jurisdiction .....         |             | 4    |
| A.2. Water Services Administration and Organization.....                |             | 5    |
| A.3 Water Services Overview .....                                       |             | 6    |
| SECTION B: WSDP PERFORMANCE REPORT .....                                |             | 14   |
| B.1 WSDP Reference and Status .....                                     |             | 14   |
| B.2 Performance on Water Services Objectives and Strategies.....        |             | 14   |
| B.3 Status of Water Services Projects .....                             |             | 17   |
| B.4 Past Financial Year Water Services Project Impact Declaration ..... |             | 18   |
| SECTION C: WATER SERVICES AUDIT REPORT .....                            |             | 19   |
| C.1 Quantity of Water Services Provided (Water Balance) .....           |             | 19   |
| C.2 Water Services Delivery Profile .....                               |             | 26   |
| C.2.1 User Connection Profile .....                                     |             | 26   |
| C.2.2 Residential Water Services Delivery Access Profile .....          |             | 31   |
| C.2.3 Residential Water Services Delivery Adequacy Profile .....        |             | 39   |
| C.3 Cost Recovery and Free Basic Services .....                         |             | 41   |
| C.3.1 Tariffs .....                                                     |             | 41   |
| C.3.2 Metering, Billing and Free Basic Services .....                   |             | 44   |
| C.3.3 Revenue Collection and Cost Recovery .....                        |             | 45   |

|                                                  |                                                                       |     |
|--------------------------------------------------|-----------------------------------------------------------------------|-----|
| C.4                                              | Water Quality .....                                                   | 51  |
| C.4.1                                            | Sampling Programme.....                                               | 51  |
| C.4.2                                            | Water Quality Compliance.....                                         | 61  |
| C.4.3                                            | Incident Management.....                                              | 65  |
| C.5                                              | Water Conservation and Water Demand Management .....                  | 70  |
| C.6                                              | Water Services Asset Management .....                                 | 80  |
| C.7                                              | Water Services Operation and Maintenance .....                        | 87  |
| C.8                                              | Water Resources .....                                                 | 90  |
| C.9                                              | Water Services Institutional Arrangements and Customer Services ..... | 97  |
| SECTION D: APPROVAL AND PUBLICATION RECORD ..... |                                                                       | 113 |

## REFERENCES

## ATTENDANCE REGISTER (DISCUSSION OF DRAFT DOCUMENT)

## ANNEXURES:

|             |                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------|
| Annexure A: | Monthly number of billed metered consumers per category and per town for the last fourteen financial years   |
|             | Monthly volume of billed metered consumption per category and per town for the last fourteen financial years |
|             | IWA Water balance models for the various water distribution systems                                          |
|             | Rainfall and WWTW's flows and capacities                                                                     |
|             | WTW's flows and capacities                                                                                   |
| Annexure B: | No Drop Spreadsheets and ILIs                                                                                |
| Annexure C: | Future Water Requirement Projections for the various water distribution systems                              |
| Annexure D: | Water Quality Compliance Sample Results for 24/25                                                            |
|             | Final Effluent Quality Compliance Sample Results for 24/25                                                   |
|             | Industrial Effluent Quality Compliance Sample Results for 24/25                                              |
| Annexure E: | DWS's scorecard for assessing the potential for WC/WDM efforts                                               |
| Annexure F: | Water and Sanitation Operational and Maintenance Expenditure and Income                                      |
| Annexure G: | Swartland Municipality's Approved Organogram                                                                 |

## LIST OF TABLES AND FIGURES

### TABLES

|               |                                                                                                                                  |    |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|----|
| Table A.2.1   | Water Services Administrative Structure.....                                                                                     | 5  |
| Table A.3.1   | Existing water infrastructure of the Swartland Bulk Water Distribution System.....                                               | 7  |
| Table A.3.2   | Design capacities of the various components of the Swartland WTW.....                                                            | 8  |
| Table A.3.3   | Swartland WTW's historical flows and percentage utilisation of design capacity.....                                              | 8  |
| Table A.3.4   | Existing internal water infrastructure.....                                                                                      | 9  |
| Table A.3.5   | Existing sewerage infrastructure.....                                                                                            | 9  |
| Table A.3.6   | Existing hydraulic design capacities and flows at each of the WWTWs and final effluent compliance percentages for 2024/2025..... | 9  |
| Table A.3.7   | Existing organic design capacities and historical loadings at the activated sludge WWTWs10                                       |    |
| Table A.3.8   | Estimated future annual population growth percentages, population and households per distribution system.....                    | 11 |
| Table A.3.9   | Water Services Overview (Water).....                                                                                             | 12 |
| Table A.3.10  | Water Services Overview (Sanitation).....                                                                                        | 13 |
| Table B.1.1   | WSDP and Reporting Reference.....                                                                                                | 14 |
| Table B.2.1   | Performance on Water Services Objectives and Strategies per WSDP Topic.....                                                      | 15 |
| Table B.3.1   | Water Services Projects Status and Performance.....                                                                              | 17 |
| Table B.4.1   | Past Financial Year Project Impact Declaration.....                                                                              | 18 |
| Table C.1.1   | Volume of water supplied by the West Coast District Municipality (MI/a).....                                                     | 19 |
| Table C.1.2   | Treatment and distribution losses for the Withoogte and Swartland bulk water schemes ...                                         | 19 |
| Table C.1.3   | Annual bulk water supply volumes (System Input Volumes) for the various water distribution systems.....                          | 21 |
| Table C.1.4   | Quantity of Water Services Provided / Water Balance.....                                                                         | 22 |
| Table C.1.5   | Quantity of water used by each user sector (Billed Metered Consumption, MI/a).....                                               | 23 |
| Table C.1.6   | Quantity of effluent received at the various WWTWs.....                                                                          | 25 |
| Table C.1.7   | Volume of effluent re-use and current re-use practices at the various WWTWs.....                                                 | 25 |
| Table C.2.1.1 | User Connection Profile for Water Services.....                                                                                  | 26 |
| Table C.2.1.2 | User Connection Profile for Wastewater Services.....                                                                             | 28 |
| Table C.2.1.3 | Number of billed metered consumers in each user sector.....                                                                      | 30 |
| Table C.2.1.4 | Total number of billed metered consumers per water distribution system and percentage growth from 2015/2016 to 2024/205.....     | 30 |
| Table C.2.2.1 | Basic water supply services.....                                                                                                 | 31 |
| Table C.2.2.2 | Residential water services delivery access profile: Water.....                                                                   | 32 |
| Table C.2.2.3 | Residential water services levels (Consumer Units).....                                                                          | 33 |
| Table C.2.2.4 | Basic sanitation supply services.....                                                                                            | 34 |
| Table C.2.2.5 | Residential water services delivery access profile: Sanitation.....                                                              | 35 |
| Table C.2.2.6 | Residential sanitation services levels (Consumer Units).....                                                                     | 36 |
| Table C.2.2.7 | Interim water and sanitation supply services.....                                                                                | 37 |

## LIST OF TABLES AND FIGURES / Continue

### TABLES

|                |                                                                                                                                                                                           |    |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table C.2.2.8  | Service Levels at Schools .....                                                                                                                                                           | 38 |
| Table C.2.2.9  | Service Levels at Medical Facilities .....                                                                                                                                                | 38 |
| Table C.2.3.1  | Residential Water Services Delivery Adequacy Profile (Water).....                                                                                                                         | 39 |
| Table C.2.3.2  | Residential Water Services Delivery Adequacy Profile (Sanitation) .....                                                                                                                   | 40 |
| Table C.3.1    | Water tariffs for 2024/2025 and the previous four financial years.....                                                                                                                    | 41 |
| Table C.3.2    | Sewerage tariffs for 2024/2025 and the previous four financial years.....                                                                                                                 | 43 |
| Table C.3.2.1  | Overview of Metering, Billing and Free Basic Services .....                                                                                                                               | 44 |
| Table C.3.3.1  | Overview of Water Services Revenue Collection and Cost Recovery.....                                                                                                                      | 45 |
| Table C.3.3.2  | Operational and Maintenance expenditure and income for water services .....                                                                                                               | 47 |
| Table C.3.3.3  | Operational and Maintenance expenditure and income for sanitation services .....                                                                                                          | 48 |
| Table C.3.3.4  | Analysis of Consumer Debtors age in days as on the 30 <sup>th</sup> of June .....                                                                                                         | 49 |
| Table C.4.1.1  | Sampling Programme for Potable Water Quality (Bulk WTWs).....                                                                                                                             | 51 |
| Table C.4.1.1  | Sampling Programme for Potable Water Quality (Internal Water Reticulation Networks) ....                                                                                                  | 51 |
| Table C.4.1.2  | Current parameters sampled by the Swartland Municipality: Routine monitoring of Process Indicators .....                                                                                  | 52 |
| Table C.4.1.3  | Swartland Municipality's Compliance of the Monthly E.Coli Monitoring Frequency in the Water Distribution Systems in Terms of the Minimum Requirements of SANS 241-2:2015 (Table 2). ..... | 52 |
| Table C.4.1.4  | Sampling Programme for Wastewater Effluent Quality .....                                                                                                                                  | 53 |
| Table C.4.1.5  | Compliance to the Sampling Programme(s) .....                                                                                                                                             | 53 |
| Table C.4.1.6  | Water Quality Monitoring Overview from WSDP Guide Framework Perspective .....                                                                                                             | 54 |
| Table C.4.1.7  | Wastewater Quality Monitoring Overview from WSDP Guide Framework Perspective .....                                                                                                        | 54 |
| Table C.4.1.8  | Blue Drop Performance of the Municipality (DWS's 2023 Blue Drop Report) .....                                                                                                             | 55 |
| Table C.4.1.9  | Average residential daily consumption (l/p/d) for the last four financial years .....                                                                                                     | 56 |
| Table C.4.1.10 | Green Drop Performance of the Swartland Municipality (DWS's 2022 Green Drop Report) 57                                                                                                    |    |
| Table C.4.1.11 | Green Drop Risk Rating of Swartland Municipality (DWS's 2023 Green Drop Progress Report).....                                                                                             | 59 |
| Table C.4.2.1  | Overview of Water Quality Compliance .....                                                                                                                                                | 61 |
| Table C.4.2.2  | Number of water quality compliance samples taken throughout the various water distribution systems over the period July 2024 to June 2025 .....                                           | 61 |
| Table C.4.2.3  | Percentage compliance of the final water quality samples for the last three financial years....                                                                                           | 62 |
| Table C.4.2.4  | Four categories under which the risks posed by Micro-organism, Physical or Aesthetic Property or Chemical Substance of potable water is normally classified .....                         | 63 |
| Table C.4.2.5  | Overview of Wastewater Quality Compliance .....                                                                                                                                           | 63 |
| Table C.4.2.6  | Percentage Microbiological (Faecal Coliforms) compliance of the compliance samples taken at the various WWTWs for the last three financial years .....                                    | 64 |
| Table C.4.2.7  | Percentage Chemical compliance of the compliance samples taken at the various WWTWs for the last three financial years .....                                                              | 64 |

## LIST OF TABLES AND FIGURES / Continue

### TABLES

|               |                                                                                                                                                                             |    |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Table C.4.2.8 | Percentage Physical compliance of the compliance samples taken at the various WWTWs for the last three financial years .....                                                | 64 |
| Table C.4.3.1 | Medium and High risks for the various WWTWs and sewer drainage networks .....                                                                                               | 67 |
| Table C.4.3.2 | Incident Management and Reporting Overview .....                                                                                                                            | 69 |
| Table C.4.3.3 | Water Quality Incident Reporting Compliance (Health Oriented) .....                                                                                                         | 69 |
| Table C.5.1   | Overview of WC/WDM Activities .....                                                                                                                                         | 70 |
| Table C.5.2   | Swartland Municipality's performance with regard to the WC/WDM KPIs for 2024/2025.....                                                                                      | 71 |
| Table C.5.3   | NRW, Water Losses and ILIs for the various water distribution systems .....                                                                                                 | 71 |
| Table C.5.4   | Description of No Drop Criteria .....                                                                                                                                       | 73 |
| Table C.5.5   | No Drop Performance of Swartland Municipality (DWS's 2023 No Drop Report) .....                                                                                             | 73 |
| Table C.5.6   | System input volume, average billed metered consumption and non-revenue water in litre per connection per day for the various water distribution systems for 2024/205 ..... | 74 |
| Table C.5.7   | Length and average head of water pipelines .....                                                                                                                            | 74 |
| Table C.5.8   | Potential savings on bulk water supply through the implementation of pressure management.....                                                                               | 76 |
| Table C.5.9   | Existing and proposed PRV zones.....                                                                                                                                        | 77 |
| Table C.5.10  | WDM activities implemented by Swartland Municipality .....                                                                                                                  | 78 |
| Table C.5.11  | The independent factors and the weight factors used to determine the pipe replacement potential .....                                                                       | 80 |
| Table C.6.1   | Opening Cost (OC) and Book Value (BV) of the water and sewerage infrastructure .....                                                                                        | 80 |
| Table C.6.2   | Overview of the RUL by facility type for water and sewerage infrastructure (OC).....                                                                                        | 82 |
| Table C.6.3   | Overview of the age distribution by facility type for water and sewerage infrastructure (OC).....                                                                           | 83 |
| Table C.6.4   | Opening Cost and Book Value of the bulk water infrastructure .....                                                                                                          | 85 |
| Table C.6.5   | Overview of the RUL by facility type for the bulk water infrastructure (OC).....                                                                                            | 86 |
| Table C.6.6   | Overview of the age distribution by facility type for the bulk water infrastructure (OC) .....                                                                              | 86 |
| Table C.7.1   | Types of Planned and Unplanned Preventative and Corrective Maintenance implemented by Swartland Municipality .....                                                          | 87 |
| Table C.7.2   | Swartland Municipality's Operation and Maintenance Assessments and Plans.....                                                                                               | 88 |
| Table C.7.3   | Recommended budgets for the replacement and the operation and maintenance of the existing water and sewerage infrastructure.....                                            | 90 |
| Table C.7.4   | Historical water and sewerage capital expenditure.....                                                                                                                      | 90 |
| Table C.8.1   | Volumes allocated to the respective WSAs in Licence No. 01/G10F/A/5903 .....                                                                                                | 91 |
| Table C.8.2   | Potential future water resources for the various towns (Recommended summary options of DWS's All Towns Reconciliation Strategies, March 2016).....                          | 91 |
| Table C.8.3   | Projected future water requirements of towns.....                                                                                                                           | 92 |
| Table C.8.4   | Years in which the annual water requirements are likely to exceed the total licence volumes for Swartland Municipality from the WCWSS .....                                 | 93 |

## LIST OF TABLES AND FIGURES / Continue

### TABLES

|             |                                                                                                                       |     |
|-------------|-----------------------------------------------------------------------------------------------------------------------|-----|
| Table C.8.5 | Compliance percentages of industrial effluent discharged by industrial consumers per parameter .....                  | 97  |
| Table C.9.1 | Municipal Strategic Self-Assessment (MuSSA) of Water Services for Swartland Municipality (2024) .....                 | 98  |
| Table C.9.2 | Training provided during the 2024/2025 financial year (Workplace Skills Plan) .....                                   | 102 |
| Table C.9.3 | Staff composition for Water Services for the last three financial years .....                                         | 103 |
| Table C.9.4 | Staff composition for Waste Water Services for the last three financial years .....                                   | 103 |
| Table C.9.5 | Water indicators monitored by Swartland Municipality with regard to customer services and maintenance work .....      | 105 |
| Table C.9.6 | Sanitation indicators monitored by Swartland Municipality with regard to customer services and maintenance work ..... | 107 |
| Table C.9.7 | Number of tanks pumped .....                                                                                          | 111 |

### FIGURES

|                |                                                                                                                  |    |
|----------------|------------------------------------------------------------------------------------------------------------------|----|
| Figure A.1.1   | Location of Swartland Municipality in the Western Cape .....                                                     | 4  |
| Figure A.1.2   | Swartland Municipality's Management Area .....                                                                   | 4  |
| Figure C.1.1   | Swartland Municipality's annual bulk potable water supply (System Input Volume) for all the systems .....        | 20 |
| Figure C.1.2   | Annual bulk potable water supply volumes (System Input Volumes) for the various water distribution systems ..... | 20 |
| Figure C.1.3   | Percentage distribution of the system input volumes for the 2024/2025 financial year .....                       | 21 |
| Figure C.1.4   | Quantity of water services provided / water balance .....                                                        | 23 |
| Figure C.2.1.1 | User connection profile for water .....                                                                          | 27 |
| Figure C.2.1.2 | User connection distribution for water – Year 2024/2025 .....                                                    | 27 |
| Figure C.2.1.3 | Number of new water connections provided during 2024/2024 .....                                                  | 27 |
| Figure C.2.1.4 | User connection profile for wastewater .....                                                                     | 29 |
| Figure C.2.1.5 | User connection distribution for wastewater – Year 2024/2025 .....                                               | 29 |
| Figure C.2.1.6 | Number of new wastewater connections provided during 2024/2025 .....                                             | 29 |
| Figure C.2.1.7 | Number of billed metered consumers per water distribution system .....                                           | 30 |
| Figure C.2.2.1 | Household water access profile .....                                                                             | 32 |
| Figure C.2.2.2 | Household sanitation access profile .....                                                                        | 35 |
| Figure C.3.3.1 | Revenue collection and cost recovery profile (Water) .....                                                       | 46 |
| Figure C.3.3.2 | Revenue collection and cost recovery profile (Wastewater) .....                                                  | 46 |
| Figure C.3.3.3 | Consumer Debtors by Income Source .....                                                                          | 50 |
| Figure C.4.3.1 | Medium residual risks for the Swartland Bulk water distribution system .....                                     | 65 |
| Figure C.4.3.2 | Medium residual risks for the Withoogte Bulk water distribution system .....                                     | 66 |
| Figure C.4.3.3 | Medium residual risks for Swartland Municipality's internal water distribution systems .....                     | 66 |

## LIST OF TABLES AND FIGURES / Continue

### Figures

|               |                                                                                    |     |
|---------------|------------------------------------------------------------------------------------|-----|
| Figure C.6.1  | Book Value and Opening Cost of the water infrastructure .....                      | 81  |
| Figure C.6.2  | Book Value and Opening Cost of the sewerage infrastructure .....                   | 81  |
| Figure C.6.3  | Remaining Useful Life of the water infrastructure .....                            | 82  |
| Figure C.6.4  | Remaining Useful Life of the sewerage infrastructure .....                         | 83  |
| Figure C.6.5  | Age distribution of the water infrastructure .....                                 | 84  |
| Figure C.6.6  | Age distribution of the sewerage infrastructure .....                              | 84  |
| Figure C.6.7  | Book Value and Opening Cost of the bulk water infrastructure .....                 | 85  |
| Figure C.6.8  | Remaining Useful Life of the bulk water infrastructure .....                       | 86  |
| Figure C.6.9  | Age distribution of the bulk water infrastructure .....                            | 87  |
| Figure C.9.1: | Spider Diagram of the vulnerability levels of Swartland Municipality for 2024..... | 98  |
| Figure C.9.2: | Water indicators recorded for the various financial years .....                    | 104 |
| Figure C.9.3: | Sanitation indicators recorded for the various financial years.....                | 104 |
| Figure C.9.4: | Number of sewage tanks pumped per year for the different areas .....               | 111 |



## ABBREVIATIONS AND DEFINITIONS

|       |                                                |
|-------|------------------------------------------------|
| AADD  | Average Annual Daily Demand                    |
| BDRR  | Blue Drop Risk Rating                          |
| BPT   | Break Pressure Tank                            |
| BRVAS | Berg River Voëlvelei Augmentation Scheme       |
| BSP   | Bulk Sewer Pipeline                            |
| BV    | Book Value                                     |
| BWP   | Bulk Water Pipeline                            |
| C     | Chemical                                       |
| CAH   | Chemical Acute Health                          |
| CAP   | Corrective Action Plan                         |
| CCH   | Chemical Chronic Health                        |
| CCT   | City of Cape Town                              |
| CF    | Consequence of Failure                         |
| CNA   | Chemical Non-Health Aesthetic                  |
| COD   | Chemical Oxygen Demand                         |
| CRC   | Current Replacement Cost                       |
| CRR   | Cumulative Risk Ratio                          |
| D     | Disinfectant                                   |
| DM    | District Municipality                          |
| DRC   | Depreciated Replacement Cost                   |
| DWQ   | Drinking Water Quality                         |
| DWS   | Department of Water and Sanitation             |
| EC    | Electrical Conductivity                        |
| EIA   | Environmental Impact Assessment                |
| ELEC  | Electrical                                     |
| ESETA | Energy Sector Education and Training Authority |
| ESKOM | Electricity Supply Commission                  |
| GAMAP | General Accepted Municipal Accounting Practice |
| GD    | Green Drop                                     |
| GDIP  | Green Drop Improvement Plan                    |
| HIV   | Human Immunodeficiency Virus                   |
| HL    | High Level                                     |
| HMI   | Human Machine Interface                        |
| IAM   | Infrastructure Asset Management                |
| ICT   | Information Communication Technology           |
| IDP   | Integrated Development Plan                    |
| ILI   | Infrastructure Leakage Index                   |
| IMQS  | Information Management Quality Systems         |
| IRIS  | Integrated Regulatory Information System       |
| IT    | Information Technology                         |
| IWA   | International Water Association                |
| KI    | Kilolitre                                      |
| KPI   | Key Performance Indicator                      |
| l/c/d | Litre per Capita per Day                       |
| LF    | Likelihood of Failure                          |

## ABBREVIATIONS AND DEFINITIONS / Continue

|        |                                                          |
|--------|----------------------------------------------------------|
| LGSETA | Local Government Sector Education and Training Authority |
| LGTAS  | Local Government Turn Around Strategy                    |
| LL     | Low Level                                                |
| LM     | Local Municipality                                       |
| l/p/d  | Litre per Person per Day                                 |
| l/s    | Litre per Second                                         |
| M      | Microbiological                                          |
| MAH    | Microbiological Acute Health                             |
| MFMA   | Municipal Finance Management Act                         |
| MIG    | Municipal Infrastructure Grant                           |
| MISA   | Municipal Infrastructure Support Agent                   |
| MI     | Mega Litre                                               |
| MI/a   | Mega Litre per Annum                                     |
| MI/d   | Mega Litre per Day                                       |
| MuSSA  | Municipal Strategic Self-Assessment                      |
| N/A    | Not Applicable                                           |
| NRW    | Non-Revenue Water                                        |
| NWA    | National Water Act                                       |
| O      | Operational                                              |
| OC     | Opening Cost                                             |
| O&M    | Operation and Maintenance                                |
| OTH    | Other                                                    |
| P      | Physical                                                 |
| PAT    | Progress Assessment Tool                                 |
| PC     | Process Controller                                       |
| PDD    | Peak Daily Demand                                        |
| P&G    | Preliminary and General                                  |
| PRP    | Pipe Replacement Potential                               |
| PRV    | Pressure Reducing Valve                                  |
| PS     | Pump Station                                             |
| PW     | Potable Water                                            |
| Q      | Quality                                                  |
| RDP    | Reconstruction and Development Programme                 |
| RES    | Reservoir                                                |
| RUL    | Remaining Useful Life                                    |
| RW     | Raw Water                                                |
| SALGA  | South African Local Government Association               |
| SANS   | South African National Standard                          |
| SCADA  | Supervisory Control and Data Acquisition                 |
| SCC    | Sewer Consumer Connections                               |
| SDBIP  | Service Delivery and Budget Implementation Plan          |
| SIV    | System Input Volume                                      |
| SL     | Swartland                                                |
| SPS    | Sewer Pump Station                                       |
| SRP    | Sewer Reticulation Pipeline                              |



## ABBREVIATIONS AND DEFINITIONS / Continue

|                    |                                                               |
|--------------------|---------------------------------------------------------------|
| SST                | Secondary Settling Tank                                       |
| STW                | Sanitation Treatment Works                                    |
| TCTA               | Trans Caledon Tunnel Authority                                |
| TMG                | Table Mountain Group                                          |
| TSS                | Total Suspended Solids                                        |
| TWL                | Top Water Level                                               |
| URV                | Unit Reference Value                                          |
| VIP                | Ventilated Improved Pit                                       |
| WCC                | Water Consumer Connections                                    |
| WCDM               | West Coast District Municipality                              |
| WCED               | Western Cape Education Department                             |
| WC/WDM             | Water Conservation / Water Demand Management                  |
| WCWSS              | Western Cape Water Supply System                              |
| WDM                | Water Demand Management                                       |
| WH                 | Withoogte                                                     |
| WPS                | Water Pump Station                                            |
| WRP                | Water Reticulation Pipeline                                   |
| WSA                | Water Services Authority                                      |
| WSDP               | Water Services Development Plan                               |
| WSDP-IDP           | Water Services Development Plan – Integrated Development Plan |
| WSI                | Water Services Institution                                    |
| WSP                | Water Services Provider                                       |
| WSS                | Water Supply System                                           |
| WTP                | Water Treatment Plant                                         |
| WTW                | Water Treatment Works                                         |
| WULA               | Water Use License Application                                 |
| W <sub>2</sub> RAP | Wastewater Risk Abatement Plan                                |
| WWTW               | Wastewater Treatment Works                                    |

## KEY TERMS AND INTERPRETATIONS

| KEY TERMS                                              | INTERPRETATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------|-----------------------------------------------------|----------------------------|---------------|---------------|------------------------------|--------------|---------------------------------|------------------------------|-------------------|--|--------------------------------|-------------------|--------------------------|-----------------|-----------------------------------------------------|------------------------------------------------|--------------------------------------------------------|--|--|---------------------------------------------------------|--|
| Current replacement cost (CRC)                         | The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset. GAMAP defines CRC as the cost the entity would incur to acquire the asset on the reporting date.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Depreciated Replacement Cost (DRC)                     | The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Financial Year                                         | Financial year means in relation to- <ul style="list-style-type: none"><li>a national or provincial department, the year ending 31 March; or</li><li>a municipality, the year ending 30 June.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Integrated Development Plan (IDP)                      | An IDP is a legislative requirement for municipalities, which identifies the municipality’s key development priorities; formulates a clear vision, mission and values; formulates appropriate strategies; shows the appropriate organisational structure and systems to realise the vision and the mission and aligns resources with the development priorities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| International Water Association (IWA) Water Balance    | <table><tr><td rowspan="7">System Input Volume</td><td rowspan="2">Authorised Consumption</td><td>Billed Authorised Consumption</td><td>Billed Metered Consumption</td><td rowspan="2">Revenue Water</td></tr><tr><td></td><td>Billed Unmetered Consumption</td></tr><tr><td rowspan="5">Water Losses</td><td>Unbilled Authorised Consumption</td><td>Unbilled Metered Consumption</td><td rowspan="5">Non-Revenue Water</td></tr><tr><td></td><td>Unbilled Unmetered Consumption</td></tr><tr><td>Commercial Losses</td><td>Unauthorised Consumption</td></tr><tr><td rowspan="3">Physical Losses</td><td>Customer Meter Inaccuracies and Data Handling Erros</td></tr><tr><td>Leakage on Transmission and Distribution Mains</td></tr><tr><td>Leakage and Overflows from the Utilities Storage Tanks</td></tr><tr><td></td><td></td><td>Leakage on Service Connections up to the Customer Meter</td><td></td></tr></table> | System Input Volume                                     | Authorised Consumption          | Billed Authorised Consumption                       | Billed Metered Consumption | Revenue Water |               | Billed Unmetered Consumption | Water Losses | Unbilled Authorised Consumption | Unbilled Metered Consumption | Non-Revenue Water |  | Unbilled Unmetered Consumption | Commercial Losses | Unauthorised Consumption | Physical Losses | Customer Meter Inaccuracies and Data Handling Erros | Leakage on Transmission and Distribution Mains | Leakage and Overflows from the Utilities Storage Tanks |  |  | Leakage on Service Connections up to the Customer Meter |  |
| System Input Volume                                    | Authorised Consumption                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                         |                                 | Billed Authorised Consumption                       | Billed Metered Consumption |               | Revenue Water |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                 | Billed Unmetered Consumption                        |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                         | Unbilled Authorised Consumption | Unbilled Metered Consumption                        | Non-Revenue Water          |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                 | Unbilled Unmetered Consumption                      |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         | Commercial Losses               | Unauthorised Consumption                            |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         | Physical Losses                 | Customer Meter Inaccuracies and Data Handling Erros |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Leakage on Transmission and Distribution Mains          |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Leakage and Overflows from the Utilities Storage Tanks |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Leakage on Service Connections up to the Customer Meter |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| System Input Volume                                    | The volume of treated water input to that part of the water supply system to which the water balance calculation relates.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Authorised Consumption                                 | <p>The volume of metered and/or un-metered water taken by registered customers, the water supplier and others who are implicitly or explicitly authorised to do so by the water supplier, for residential, commercial and industrial purposes. It also includes water exported across operational boundaries.</p> <p>Authorised consumption may include items such as firefighting and training, flushing of mains and sewers, street cleaning, watering of municipal gardens, public fountains, frost protection, building water, etc. These may be billed or unbilled, metered or unmetered.</p>                                                                                                                                                                                                                                                                                                                           |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Water Losses                                           | The difference between System Input and Authorised Consumption. Water losses can be considered as a total volume for the whole system, or for partial systems such as transmission or distribution schemes, or individual zones. Water Losses consist of Physical Losses and Commercial Losses (also known as Real Losses and Apparent Losses).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Billed Authorised Consumption                          | Those components of Authorised Consumption which are billed and produce revenue (also known as Revenue Water). Equal to Billed Metered Consumption plus Billed Unmetered Consumption.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Unbilled Authorised Consumption                        | Those components of Authorised Consumption which are legitimate but not billed and therefore do not produce revenue. Equal to Unbilled Metered Consumption plus Unbilled Unmetered Consumption.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |
| Commercial Losses                                      | <p>Includes all types of inaccuracies associated with customer metering as well as data handling errors (meter reading and billing), plus unauthorised consumption (theft or illegal use).</p> <p>Commercial losses are called “Apparent Losses” by the International Water Association and in some countries the misleading term “Non-Technical Losses” is used.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                         |                                 |                                                     |                            |               |               |                              |              |                                 |                              |                   |  |                                |                   |                          |                 |                                                     |                                                |                                                        |  |  |                                                         |  |

| KEY TERMS                                                       | INTERPRETATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical Losses                                                 | Physical water losses from the pressurized system and the utility's storage tanks, up to the point of customer use. In metered systems this is the customer meter, in unmetered situations this is the first point of use (stop tap/tap) within the property. Physical losses are called "Real Losses" by the International Water Association and in some countries the misleading term "Technical Losses" is used.                                                                     |
| Billed Metered Consumption                                      | All metered consumption which is also billed. This includes all groups of customers such as domestic, commercial, industrial or institutional and also includes water transferred across operational boundaries (water exported) which is metered and billed.                                                                                                                                                                                                                           |
| Billed Unmetered Consumption                                    | All billed consumption which is calculated based on estimates or norms but is not metered. This might be a very small component in fully metered systems (for example billing based on estimates for the period a customer meter is out of order) but can be the key consumption component in systems without universal metering. This component might also include water transferred across operational boundaries (water exported) which is unmetered but billed.                     |
| Unbilled Metered Consumption                                    | Metered Consumption which is for any reason unbilled. This might for example include metered consumption by the utility itself or water provided to institutions free of charge, including water transferred across operational boundaries (water exported) which is metered but unbilled.                                                                                                                                                                                              |
| Unbilled Unmetered Consumption                                  | Any kind of Authorised Consumption which is neither billed nor metered. This component typically includes items such as fire-fighting, flushing of mains and sewers, street cleaning, frost protection, etc. In a well-run utility it is a small component which is very often substantially overestimated. Theoretically this might also include water transferred across operational boundaries (water exported) which is unmetered and unbilled – although this is an unlikely case. |
| Unauthorised Consumption                                        | Any unauthorised use of water. This may include illegal water withdrawal from hydrants (for example for construction purposes), illegal connections, bypasses to consumption meters or meter tampering.                                                                                                                                                                                                                                                                                 |
| Customer Metering Inaccuracies and Data Handling Errors         | Commercial water losses caused by customer meter inaccuracies and data handling errors in the meter reading and billing system.                                                                                                                                                                                                                                                                                                                                                         |
| Leakage on Transmission and /or Distribution Mains              | Water lost from leaks and breaks on transmission and distribution pipelines. These might either be small leaks which are still unreported (e.g. leaking joints) or large bursts which were reported and repaired but did obviously leak for a certain period before that.                                                                                                                                                                                                               |
| Leakage and Overflows at Utility's Storage Tanks                | Water lost from leaking storage tank structures or overflows of such tanks caused by e.g. operational or technical problems.                                                                                                                                                                                                                                                                                                                                                            |
| Leakage on Service Connections up to point of Customer Metering | Water lost from leaks and breaks of service connections from (and including) the tapping point until the point of customer use. In metered systems this is the customer meter, in unmetered situations this is the first point of use (stop tap/tap) within the property. Leakage on service connections might be reported breaks but will predominately be small leaks which do not surface and which run for long periods (often years).                                              |
| Revenue Water                                                   | Those components of Authorised Consumption which are billed and produce revenue (also known as Billed Authorised Consumption). Equal to Billed Metered Consumption plus Billed Unmetered Consumption.                                                                                                                                                                                                                                                                                   |
| Non-Revenue Water                                               | Those components of System Input which are not billed and do not produce revenue. Equal to Unbilled Authorised Consumption plus Physical and Commercial Water Losses.                                                                                                                                                                                                                                                                                                                   |
| Municipal Finance Management Act (MFMA)                         | Municipal Finance Management Act, 2003 (Act No. 56 of 2003)                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MIG                                                             | A conditional grant from national government to support investment in basic municipal infrastructure.                                                                                                                                                                                                                                                                                                                                                                                   |
| Remaining useful life (RUL)                                     | The time remaining over which an asset is expected to be used.                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Service Delivery Budget Implementation Plan (SDBIP)             | The SDBIP is a management, implementation and monitoring tool that enable the Municipal Manager to monitor the performance of senior managers, the Mayor to monitor the performance of the Municipal Manager, and for the community to monitor the performance of the municipality.                                                                                                                                                                                                     |
| Strategic Framework for Water Services                          | The Strategic Framework provides a comprehensive summary of policy with respect to the water services sector in South Africa and sets out a                                                                                                                                                                                                                                                                                                                                             |

| KEY TERMS                              | INTERPRETATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        | strategic framework for its implementation over the next ten years.                                                                                                                                                                                                                                                                                                                                                                                               |
| Water Conservation                     | The minimisation of loss or waste, the care and protection of water resources and the efficient and effective use of water.                                                                                                                                                                                                                                                                                                                                       |
| Water Demand Management                | The adaptation and implementation of a strategy by a water institution or consumer to influence the water demand and usage of water in order to meet any of the following objectives: economic efficiency, social development, social equity, environmental protection, sustainability of water supply and services, and political acceptability.                                                                                                                 |
| Water Services Authority (WSA)         | A water services authority means a municipality with the executive authority and the right to administer water services as authorised in terms of the Municipal Structures Act, 1998 (Act No.117 of 1998). There can only be one water services authority in any specific area. Water services authority area boundaries cannot overlap. Water services authorities are metropolitan municipalities, district municipalities and authorised local municipalities. |
| Water Services Development Plan (WSDP) | A plan to be developed and adopted by the WSA in terms of the Water Services Act, 1997 (Act No.108 of 1997)                                                                                                                                                                                                                                                                                                                                                       |
| WSDP Guide Framework                   | Modular tool which has been developed by the DWS to support WSAs in complying with the Water Services Act with respect to Water Services Development Planning and which is also used by the DWS to regulate such compliance.                                                                                                                                                                                                                                      |
| Water Services Provider (WSP)          | A WSP means any person or institution who provides water services to consumers or to another water services institution, but does not include a water services intermediary.                                                                                                                                                                                                                                                                                      |

## SWARTLAND MUNICIPALITY

### ANNUAL WSDP PERFORMANCE AND WATER SERVICES AUDIT REPORT FOR 2024/2025

#### EXECUTIVE SUMMARY

Swartland Municipality is required in terms of Section 18 of the Water Services Act, 1997 (Act No.108 of 1997), as well as the “Regulations relating to compulsory national standards and measures to conserve water”, as issued in terms of sections 9(1) and 73(1)(j) of the Water Services Act, to report on the implementation of its WSDP during each financial year and to include a water services audit in such an annual report.

Section 62 of the Water Services Act requires the Minister to monitor every WSI in order to ensure compliance with the prescribed national standards. This regulation requires a WSA to complete and submit a WSDP Performance- and Water Services Audit Report every financial year.

The WSDP Performance- and Water Services Audit is designed to monitor the compliance of the WSA and other WSIs with these regulations. The Water Services Act allows the audit to be used as a tool to compare actual performance of the WSA against the targets and indicators set in their WSDP. The WSDP Performance- and Water Services Audit also assists local communities and DWS to assess how well WSAs are performing relative to their stated intentions and their capacity.

The WSDP Performance- and Water Services Audit Report will give an overview of the implementation of the Municipality’s previous year’s WSDP, for the 2024/2025 financial year, and can be seen as an annexure to Swartland Municipality’s Annual Report. The Annual Report is compiled as required by the Local Government: Municipal Systems Act, Act no 32 of 2000 (Section 46) and the Local Government: Municipal Finance Management Act, Act no 56 of 2003 (Section 121).

Availability of the Water Services Audit Report: The WSDP Performance- and Water Services Audit Report is a public document and must be made available within four months after the end of each financial year and must be available for inspection at the offices of the WSA. It is also recommended that the document be placed on the Municipality’s website and that copies of the document be placed at the public libraries. The Water Services Audit Report also needs to be made available to the Minister of the DWS, the Minister of the Department of Cooperative Governance, the Province and to SALGA, as required by the Water Services Act, 1997.

The following water and sanitation related investigations were successfully completed during the last financial year.

- The WSDP Performance- and Water Services Audit Report for the 2023/2024 financial year was finalised and approved by Council as part of the Annual Report. The non-revenue water balance models were updated for each of the distribution systems (Up to the end of June 2024) as part of the WSDP Performance- and Water Services Audit Process.
- The infrastructure constructed during the 2024/2025 financial year were added to the Asset Register and the Asset Register was updated.
- Concept Design Report was compiled for the Upgrading of Bulk Water Pipeline Wesbank Reservoir to Malmesbury / Abbotsdale, April 2025, BVi Consulting Engineers.
- Continuation Upgrading of Malmesbury, Moorreesburg, Riebeeck Kasteel and Darling Wastewater Treatment Works – Malmesbury WWTW Clarifier Bridge Assessment and Replacement, June 2025, Zutari.
- The Wastewater Risk Abatement Plans (W<sub>2</sub>RAPs) for the various WWTWs and sewer drainage networks were updated, February 2025, iX Engineers.



- Process Audit Reports were compiled for the Various Wastewater Treatment Plants for the Period July 2022 to June 2024, February 2025, Chris Swartz Water Utilization Engineers.
- Swartland Municipality continues with the implementation of their Water and Wastewater Quality Sampling Programmes (Both Operational and Compliance Monitoring). The effluent discharged by industrial consumers is also monitored by Swartland Municipality on a monthly basis.

The Municipality previously received the following awards / acknowledgements with regard to DWS's Blue-, Green- and No Drop assessments:

- **Swartland Municipality performed excellent with regard to DWS's 2023 Blue Drop Assessment. The Withoogte System received Blue Drop status with a score of 96.48%. The Swartland system received a Blue Drop score of 93.33%.** The Blue Drop Risk Ratings for both systems were in the low-risk category (<50%). The Blue Drop scores were supported by an excellent site assessment score of 92% for the Swartland WTW and 95% for the Withoogte WTW.
- **Swartland Municipality achieved an "Excellent" score of 91% for the 2023 No Drop Assessment and was acknowledged as one of the top performing WSAs in the country.**
- **Swartland Municipality is performing above average with regard to wastewater quality management, with an overall Green Drop Score of 89% for DWS's 2021 Green Drop assessment.** The Green Drop Scores for the Malmesbury-, Riebeek Valley- and Darling WWTW were between 89% and 95% (Three potential Green Drop certified systems). **Swartland Municipality was also acknowledged by the DWS as one of the Top 3 Best Performing Municipalities for their Green Drop Results.**
- Swartland Municipality also received their 2023 Green Drop Risk Ratings, as included in the 2023 Green Drop Progress Report. The overall Cumulative Risk Rating of Swartland Municipality was 51.2% (Medium Risk). The Wastewater Risk Ratings were at low risk for the Malmesbury WWTW (<50%), at medium risk for the Chatsworth, Darling and Kalbaskraal WWTW (50% - <70%) and high risk for the Koringberg, Moorreesburg and Riebeek Valley WWTW (70% - <90%).

#### Quantity of Water Services Provided (Water Balance)

Detail IWA water balance models are in place for each of the distribution systems in Swartland Municipality's Management Area. These models include the volume of potable water supplied to the Swartland Municipality by the West Coast District Municipality (System Input Volume), the volume of water abstracted from the Municipality's own water resources and the NRW and Water Losses for each of the distribution systems. The flows at the WWTWs are also metered and recorded by the Municipality.

#### Water Services Delivery Profile

The number of billed metered consumers per category or user type is available for each of the water distribution systems. The 2024/2025 number of billed metered consumers in Swartland Municipality was 23 681. The average annual growth in the number of billed metered consumers for all the towns over the period 2015/2016 to 2024/2025, last nine financial years, was 2.18%. All the formal households in the urban areas of Swartland Municipality's Management Area are provided with water and sewer connections inside the erven.

Informal areas are provided with shared services as an intermediary measure. There are an estimated 950 informal households in Chatsworth with no access to shared water and sanitation services. The only other areas where communal water services are in use is on some of the farms in the rural areas. Swartland Municipality is committed to work with the private landowners to ensure that at least basic water and sanitation services are provided to those households in the rural areas with existing services still below RDP standard.

All schools and medical facilities in the urban areas of Swartland Municipality's Management Area are supplied with adequate water and sanitation services and there is no backlog with regard to water and sanitation services for the schools in the urban areas. The service levels of the primary schools in the rural areas however need to be verified.

### Cost Recovery and Free Basic Services

A seven block step rising water tariff structure is implemented by Swartland Municipality for their residential consumers. This tariff structure discourages the wasteful or inefficient use of water. Various levels of water restriction tariffs are also in place for drought periods. It is expected that the Municipality will continue with the implementation of the block step rising water tariff structure for their residential consumers in the future.

The first six (6) kl of water is provided free to all indigent registered residential consumers. Swartland Municipality's tariffs support the viability and sustainability of water supply services to the poor through cross-subsidies where feasible. Free basic water and sanitation services are linked to the Municipality's Indigent Policy and all indigent households therefore receive free basic water and sanitation services. This implies that either the equitable share is used to cover this cost, or higher consumption blocks are charged at a rate greater than the cost in order to generate a surplus to cross-subsidise indigent consumers who use up to six (6) kilolitres per month.

The operational and maintenance expenditure and income for the last seven financial years for water and sanitation services is summarised in the table below (Unaudited).

| Operational and Maintenance expenditure and income for water and sanitation services |                     |                     |                     |                     |                     |                     |                     |
|--------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Expenditure / Income                                                                 | 24/25               | 23/24               | 22/23               | 21/22               | 20/21               | 19/20               | 18/19               |
| Expenditure                                                                          | R98 687 056         | R92 439 548         | R86 615 726         | R79 784 692         | R44 955 432         | R61 301 899         | R23 087 917         |
| Income                                                                               | -R124 788 653       | -R129 736 652       | -R123 943 612       | -R99 081 926        | -R90 231 763        | -R106 205 533       | -R79 626 773        |
| <b>Surplus / Deficit</b>                                                             | <b>-R26 101 597</b> | <b>-R37 297 104</b> | <b>-R37 327 886</b> | <b>-R19 297 234</b> | <b>-R45 276 331</b> | <b>-R44 903 634</b> | <b>-R56 538 856</b> |
| Expenditure                                                                          | R67 971 178         | R66 082 402         | R56 389 563         | R56 552 156         | R50 616 866         | R49 817 322         | R31 688 531         |
| Income                                                                               | -R106 063 857       | -R100 134 846       | -R83 697 003        | -R94 802 406        | -R87 825 165        | -R71 074 049        | -R62 948 777        |
| <b>Surplus / Deficit</b>                                                             | <b>-R38 092 679</b> | <b>-R34 052 444</b> | <b>-R27 307 440</b> | <b>-R38 250 250</b> | <b>-R37 208 299</b> | <b>-R21 256 727</b> | <b>-R31 260 246</b> |

### Water Quality

Operational Sampling programmes are implemented by the West Coast District Municipality at their two bulk WTWs. Compliance Water Quality Monitoring Programmes are also implemented by the West Coast District Municipality and the Swartland Municipality throughout the water distribution systems. Operational and Compliance Wastewater Quality Monitoring Programmes are implemented by Swartland Municipality at their WWTWs.

The water quality of all the water distribution systems in Swartland Municipality was either "Excellent" or "Good", according to the SANS0241 classification, except for Darling and Yzerfontein that were "Unacceptable" for Operational Efficiency (due to pH failures) and Koringberg that was "Unacceptable" for Acute Health Microbiological (due to E.Coli failures). A full SANS0241 analyses was done during the 2024/2025 financial year.

The overall percentage of compliance of the water quality samples taken over the period July to June for the last three financial years is summarised in the table below per water distribution system (SANS 241: 2015 Limits).

| Percentage compliance of the final water quality samples for the last three financial years |                  |              |              |                 |             |             |                |             |              |             |             |             |                        |             |             |
|---------------------------------------------------------------------------------------------|------------------|--------------|--------------|-----------------|-------------|-------------|----------------|-------------|--------------|-------------|-------------|-------------|------------------------|-------------|-------------|
| Distribution System                                                                         | Acute Health (%) |              |              |                 |             |             | Chronic Health |             |              | Aesthetic   |             |             | Operational Efficiency |             |             |
|                                                                                             | Chemical         |              |              | Microbiological |             |             | 24/25          | 23/24       | 22/23        | 24/25       | 23/24       | 22/23       | 24/25                  | 23/24       | 22/23       |
|                                                                                             | 24/25            | 23/24        | 22/23        | 24/25           | 23/24       | 22/23       |                |             |              |             |             |             |                        |             |             |
| Moorreesburg                                                                                | 100.0            | 100.0        | 100.0        | 95.7            | 98.0        | 100.0       | 100.0          | 100.0       | 100.0        | 99.3        | 100.0       | 100.0       | 96.9                   | 97.4        | 95.6        |
| Koringberg                                                                                  | 100.0            | 100.0        | 100.0        | 91.2            | 96.2        | 100.0       | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 93.0                   | 87.8        | 92.5        |
| Malmesbury                                                                                  | 100.0            | 100.0        | 100.0        | 100.0           | 99.4        | 100.0       | 99.7           | 100.0       | 100.0        | 100.0       | 99.7        | 99.7        | 95.5                   | 98.1        | 96.8        |
| Darling                                                                                     | 100.0            | 100.0        | 100.0        | 98.7            | 98.8        | 97.6        | 100.0          | 99.2        | 100.0        | 100.0       | 100.0       | 98.3        | 86.2                   | 96.4        | 90.7        |
| Riebeek Kasteel                                                                             | 100.0            | 100.0        | 100.0        | 100.0           | 100.0       | 100.0       | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 94.9                   | 95.7        | 97.0        |
| Riebeek Wes                                                                                 | 100.0            | 100.0        | 100.0        | 100.0           | 100.0       | 100.0       | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 99.0                   | 100.0       | 100.0       |
| Yzerfontein                                                                                 | 100.0            | 100.0        | 100.0        | 100.0           | 100.0       | 98.1        | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 85.7                   | 85.1        | 84.3        |
| Riverlands                                                                                  | 100.0            | 100.0        | 100.0        | 100.0           | 100.0       | 90.0        | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 100.0                  | 95.4        | 90.0        |
| Abbotsdale                                                                                  | 100.0            | 100.0        | 100.0        | 100.0           | 96.4        | 100.0       | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 94.0                   | 87.9        | 93.3        |
| Chatsworth                                                                                  | 100.0            | 100.0        | 100.0        | 100.0           | 100.0       | 89.7        | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 100.0                  | 97.4        | 94.2        |
| Kalbaskraal                                                                                 | 100.0            | 100.0        | 100.0        | 100.0           | 96.6        | 96.3        | 100.0          | 100.0       | 100.0        | 100.0       | 100.0       | 100.0       | 97.0                   | 90.7        | 94.3        |
| <b>All Systems</b>                                                                          | <b>100.0</b>     | <b>100.0</b> | <b>100.0</b> | <b>98.4</b>     | <b>98.9</b> | <b>98.3</b> | <b>99.9</b>    | <b>99.9</b> | <b>100.0</b> | <b>99.9</b> | <b>99.9</b> | <b>99.7</b> | <b>93.8</b>            | <b>94.7</b> | <b>93.8</b> |

Note: Unacceptable (According to SANS241-2:2015, Table 4)

The table below indicates the compliance of the E.Coli monitoring frequency in the water distributions systems of Swartland Municipality, in terms of the minimum requirements of SANS:241-2: 2015 (Table 2). The period assessed was for samples taken from July 2024 to June 2025.

| Swartland Municipality's Compliance of the Monthly E.Coli Monitoring Frequency for the Water Distribution Systems and at the WTWs in terms of the Minimum Requirements of SANS 241-2:2015 (Table 2). |                   |                                                               |                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Distribution System                                                                                                                                                                                  | Population served | Required number of monthly samples (SANS 241-2:2015: Table 2) | Number of monthly E.Coli samples taken on the network by Swartland Mun. and the West Coast DM |
| Koringberg                                                                                                                                                                                           | 2 021             | 2.0                                                           | 4.6                                                                                           |
| Riebeek Wes and Ongegund                                                                                                                                                                             | 9 822             | 2.0                                                           | 2.0                                                                                           |
| Riebeek Kasteel                                                                                                                                                                                      | 11 473            | 2.3                                                           | 4.1                                                                                           |
| Yzerfontein                                                                                                                                                                                          | 1 898             | 2.0                                                           | 4.1                                                                                           |
| Darling                                                                                                                                                                                              | 13 479            | 2.7                                                           | 6.0                                                                                           |
| Moorreesburg                                                                                                                                                                                         | 21 441            | 4.3                                                           | 5.4                                                                                           |
| Malmesbury                                                                                                                                                                                           | 63 617            | 12.7                                                          | 12.1                                                                                          |
| Abbotsdale                                                                                                                                                                                           | 5 525             | 2.0                                                           | 2.0                                                                                           |
| Kalbaskraal                                                                                                                                                                                          | 4 546             | 2.0                                                           | 2.0                                                                                           |
| Riverlands and Chatsworth                                                                                                                                                                            | 8 643             | 2.0                                                           | 3.2                                                                                           |

The above sampling done by the Swartland Municipality and the West Coast District Municipality ensure that the number of monthly E.Coli samples taken, as required by SANS 241, is adequate.

The overall Microbiological, Chemical and Physical compliance percentages of the final effluent samples taken over the last three financial years at the Malmesbury-, Darling-, Moorreesburg-, Koringberg-, Chatsworth-, Kalbaskraal- and Riebeek Valley WWTW are summarised in the tables below.

| Percentage microbiological, chemical and physical compliance of the compliance samples taken at the various WWTWs for the last three financial years |                 |              |              |              |              |              |              |              |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| WWTW                                                                                                                                                 | Microbiological |              |              | Chemical     |              |              | Physical     |              |              |
|                                                                                                                                                      | 24/25           | 23/24        | 22/23        | 24/25        | 23/24        | 22/23        | 24/25        | 23/24        | 22/23        |
| Malmesbury                                                                                                                                           | 92.9%           | 75.0%        | 100.0%       | 93.9%        | 70.8%        | 79.2%        | 80.6%        | 66.7%        | 86.1%        |
| Darling                                                                                                                                              | 92.3%           | 91.7%        | 100.0%       | 81.6%        | 89.6%        | 83.3%        | 86.1%        | 86.1%        | 83.3%        |
| Moorreesburg                                                                                                                                         | 76.5%           | 100.0%       | 8.3%         | 83.7%        | 75.0%        | 45.8%        | 91.7%        | 77.8%        | 60.0%        |
| Koringberg                                                                                                                                           | 0.0%            | 8.3%         | 0.0%         | 27.1%        | 29.2%        | 27.1%        | 33.3%        | 30.6%        | 36.1%        |
| Chatsworth                                                                                                                                           | 8.3%            | 8.3%         | 8.3%         | 35.4%        | 37.5%        | 31.3%        | 63.9%        | 72.2%        | 63.9%        |
| Kalbaskraal                                                                                                                                          | 100.0%          | 100.0%       | 100.0%       | 58.3%        | 66.7%        | 58.3%        | 91.7%        | 95.8%        | 100.0%       |
| Riebeek Valley                                                                                                                                       | 53.8%           | 58.3%        | 83.3%        | 67.3%        | 93.8%        | 89.6%        | 77.8%        | 100.0%       | 100.0%       |
| <b>Overall Compliance %</b>                                                                                                                          | <b>62.4%</b>    | <b>63.1%</b> | <b>57.1%</b> | <b>64.8%</b> | <b>66.0%</b> | <b>59.3%</b> | <b>74.2%</b> | <b>74.6%</b> | <b>74.5%</b> |

All industrial effluent discharge into the sewer system of Swartland Municipality is monitored. The Municipality's Water Services By-laws, with regard to the discharge of industrial effluent into the sewer system, were promulgated and all industrial consumers formally apply for the discharge of industrial effluent into the sewer system. An external accredited laboratory monitors the industrial effluent of the industrial consumers in Darling, Moorreesburg and Malmesbury on a weekly basis.

## WC/WDM

The implementation of Swartland Municipality's Water Demand Management Strategy has been extremely successful, and the Municipality was able to reduce the water requirements of the towns significantly. The average annual water requirement growth over the period 2001/2002 to 2024/2025 was 1.98 %/a. The table below gives a summary of the NRW, Water Losses and ILI for the various water distribution systems in Swartland Municipality's Management Area.

| NRW, Water Losses and ILIs for the various water distribution systems |                                                                                                                                                                                                                                                                                                                                                                                                           |            |        |                      |        |        |        |        |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------|----------------------|--------|--------|--------|--------|
| Description                                                           | Component                                                                                                                                                                                                                                                                                                                                                                                                 | Unit       | 24/25  | Record: Prior (Ml/a) |        |        |        |        |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           |            |        | 23/24                | 22/23  | 21/22  | 20/21  | 19/20  |
| Koringberg                                                            | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 12.014 | 7.382                | 7.337  | 12.099 | 13.395 | 16.976 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 17.5%  | 13.1%                | 13.5%  | 21.8%  | 23.7%  | 32.7%  |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 10.257 | 5.649                | 5.608  | 10.368 | 12.634 | 16.224 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 14.9%  | 10.0%                | 10.4%  | 18.7%  | 22.4%  | 31.3%  |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                       |            | 1.40   | 0.79                 | 0.83   | 1.51   | 1.80   | 1.59   |
|                                                                       | The NRW and Water Losses increased during the last financial year, but are still at excellent levels. The Municipality needs to continue with the implementation of their WC/WDM measures in order to keep the NRW and water losses percentages for Koringberg below 20%. The ILI of 1.40 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2. |            |        |                      |        |        |        |        |
| Ongegend                                                              | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 4.261  | 4.822                | 1.260  | 9.214  | 3.075  | 4.236  |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 19.0%  | 20.5%                | 5.9%   | 38.4%  | 17.4%  | 24.9%  |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 4.036  | 4.595                | 1.037  | 8.986  | 2.968  | 4.130  |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 18.0%  | 19.5%                | 4.9%   | 37.4%  | 16.8%  | 24.2%  |
|                                                                       | The NRW and Water Losses decreased slightly during the last financial year, which is excellent. The NRW is below DWS's NRW target of 30%. The Municipality needs to keep the NRW and water losses percentages for Ongegend less than 20%.                                                                                                                                                                 |            |        |                      |        |        |        |        |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           |            |        |                      |        |        |        |        |
| Riebeek Wes                                                           | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 23.121 | 21.053               | 19.802 | 18.314 | 26.490 | 22.040 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 12.1%  | 11.3%                | 11.2%  | 10.2%  | 15.5%  | 14.0%  |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 11.038 | 8.982                | 7.749  | 6.255  | 21.468 | 17.044 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 5.8%   | 4.8%                 | 4.4%   | 3.5%   | 12.6%  | 10.8%  |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                       |            | 0.41   | 0.33                 | 0.29   | 0.23   | 0.80   | 0.82   |
|                                                                       | The NRW and Water Losses are at excellent levels and stayed roughly the same for the last four financial years. The Municipality needs to keep the NRW below 15% and the water losses below 10%. The ILI of 0.41 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2.                                                                          |            |        |                      |        |        |        |        |

| NRW, Water Losses and ILIs for the various water distribution systems |                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |           |                      |         |           |           |         |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|----------------------|---------|-----------|-----------|---------|
| Description                                                           | Component                                                                                                                                                                                                                                                                                                                                                                                                                             | Unit       | 24/25     | Record: Prior (Ml/a) |         |           |           |         |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |           | 23/24                | 22/23   | 21/22     | 20/21     | 19/20   |
| Riebeeck Kasteel                                                      | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 113.126   | 146.401              | 153.504 | 98.088    | 52.790    | 47.762  |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 29.2%     | 35.9%                | 38.6%   | 29.6%     | 20.6%     | 21.4%   |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 108.390   | 141.626              | 148.749 | 93.466    | 50.693    | 45.732  |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 27.9%     | 34.8%                | 37.4%   | 28.2%     | 19.8%     | 20.5%   |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 3.03      | 3.99                 | 4.21    | 2.72      | 1.45      | 1.52    |
|                                                                       | The NRW and Water Losses further decreased during the last financial year, which is excellent. The current NRW is now below DWS's NRW target of 30%. The Municipality needs to keep the NRW below 30% and needs to work towards a target of 25% for the water losses. The ILI value of 3.03 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                             |            |           |                      |         |           |           |         |
| Yzerfontein                                                           | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 44.226    | 65.361               | 24.725  | 40.333    | 60.201    | 47.109  |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 12.6%     | 19.2%                | 8.2%    | 13.1%     | 20.1%     | 19.8%   |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 30.925    | 52.080               | 11.526  | 27.117    | 54.562    | 41.593  |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 8.8%      | 15.3%                | 3.8%    | 8.80%     | 18.2%     | 17.5%   |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 0.53      | 0.85                 | 0.21    | 0.50      | 1.03      | 0.97    |
|                                                                       | The NRW and Water Losses decreased during the last financial year, which is excellent. The current percentages of NRW below 20% and Water Losses below 15% are at very low levels and below DWS's NRW target of 30%. The Municipality needs to keep the NRW below 20% and the water losses below 15%. The ILI of 0.53 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2. |            |           |                      |         |           |           |         |
| Darling                                                               | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 158.894   | 41.311               | -6.984  | 150.430   | 150.505   | 138.078 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 25.3%     | 7.8%                 | -1.5%   | 25.0%     | 26.4%     | 26.7%   |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 150.617   | 33.229               | -14.918 | 142.205   | 146.555   | 134.234 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 24.0%     | 6.3%                 | -3.3%   | 23.6%     | 25.7%     | 25.9%   |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 3.23      | 0.72                 | 2.82    | 3.09      | 3.20      | 2.08    |
|                                                                       | The NRW and water losses for the last financial year were higher and roughly at the same level as it were over the period 2019/2020 to 2021/2022. The Municipality needs to keep the NRW below 30% and needs to work towards a target of 20% for the water losses. The ILI value of 3.23 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                                |            |           |                      |         |           |           |         |
| Moorreesburg                                                          | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 242.757   | 215.211              | 196.685 | 169.718   | 136.476   | 119.301 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 30.0%     | 28.6%                | 27.4%   | 24.5%     | 20.3%     | 20.2%   |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 226.199   | 198.765              | 180.308 | 153.392   | 129.156   | 112.145 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 28.0%     | 26.4%                | 25.1%   | 22.1%     | 19.2%     | 19.0%   |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 3.00      | 2.64                 | 2.40    | 2.06      | 1.74      | 1.36    |
|                                                                       | The NRW and Water Losses increased slightly during the last financial year. The NRW is currently at DWS's NRW target of 30%. The Municipality needs to keep the NRW below 30% and needs to work towards a target of 20% for the water losses. The ILI value of 3.00 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                                                     |            |           |                      |         |           |           |         |
| Malmesbury                                                            | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 802.683   | 668.245              | 459.356 | 755.496   | 595.795   | 379.300 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 22.0%     | 20.1%                | 15.0%   | 23.4%     | 20.3%     | 15.0%   |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 728.077   | 594.275              | 385.917 | 681.709   | 562.994   | 347.331 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 20.0%     | 17.9%                | 12.6%   | 21.1%     | 19.2%     | 13.8%   |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 2.71      | 2.23                 | 1.46    | 2.67      | 2.20      | 1.44    |
|                                                                       | The NRW and Water Losses increased slightly during the last financial year, but the NRW is still below DWS's NRW target of 30%. The Municipality needs to keep the NRW below 25% and the water losses below 15%. The ILI value of 2.71 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                                                                                  |            |           |                      |         |           |           |         |
| All Systems                                                           | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 1 401.333 | 1 169.786            | 855.685 | 1 253.692 | 1 038.727 | 774.802 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 23.0%     | 20.8%                | 16.5%   | 23.1%     | 20.9%     | 18.0%   |
|                                                                       | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 1 269.789 | 1 039.201            | 725.976 | 1 123.498 | 981.030   | 718.433 |
|                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 20.8%     | 18.5%                | 14.0%   | 20.7%     | 19.7%     | 16.6%   |
|                                                                       | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 2.67      | 2.17                 | 1.83    | 2.40      | 2.11      | 1.60    |
|                                                                       | The overall NRW and Water Losses further increased during the last financial year, mainly because of the increase in the NRW and Water Losses of Malmesbury and Darling. The Municipality needs to keep the NRW below 25% and needs to work towards a target of 15% for the water losses. The ILI value of 2.67 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.         |            |           |                      |         |           |           |         |

Note: Infrastructure Leakage Index (ILI) for Developed Countries = 1 – 2 Excellent (Category A), 2 – 4 Good (Category B), 4 – 8 Poor (Category C) and > 8 – Very Bad (Category D)

**Category A** = No specific intervention required.

**Category B** = No urgent action required although should be monitored carefully.

**Category C** = Requires attention

**Category D** = Requires immediate water loss reduction interventions

DWS's WC/WDM scorecard was also populated as part of the Water Services Audit Process. The aim of the scorecard is to establish areas where the municipality has made good progress in relation to WC/WDM and where there is still room for improvement. **The status quo score for Swartland Municipality is 85 out of 100 suggesting that the Municipality is making good progress with regard to the implementation of specific WC/WDM activities.**

### Water Services Asset Management

An Asset Register is in place, which include all the water and sewerage infrastructure. The Opening Cost, Book Value, RUL and Age distribution of the water and sewerage infrastructure included in Swartland Municipality's Asset Register is summarised in the table below (June 2025).

| Opening Cost, Book Value, RUL and Age distribution of the water and sewerage infrastructure |              |              |                   |                 |              |
|---------------------------------------------------------------------------------------------|--------------|--------------|-------------------|-----------------|--------------|
| Asset Type                                                                                  |              |              | Opening Cost (OC) | Book Value (BV) | % BV / OC    |
| Water Infrastructure                                                                        |              |              | R929 187 293      | R454 659 740    | 49%          |
| Sewerage Infrastructure                                                                     |              |              | R881 197 918      | R493 324 666    | 56%          |
| Remaining Useful Life                                                                       |              |              |                   |                 |              |
| Asset Type                                                                                  | 0 – 5 yrs    | 6 – 10 yrs   | 11 – 15 yrs       | 16 – 20 yrs     | > 20 yrs     |
| Water Infrastructure                                                                        | R3 878 640   | R40 618 188  | R7 161 300        | R3 719 993      | R873 809 172 |
| Sewerage Infrastructure                                                                     | R6 090 994   | R43 831 432  | R59 016 642       | R54 503 330     | R717 755 520 |
| Age Distribution                                                                            |              |              |                   |                 |              |
| Asset Type                                                                                  | 0 – 5 yrs    | 6 – 10 yrs   | 11 – 15 yrs       | 16 – 20 yrs     | > 20 yrs     |
| Water Infrastructure                                                                        | R109 531 999 | R157 578 320 | R6 144 196        | R258 434 209    | R397 498 569 |
| Sewerage Infrastructure                                                                     | R333 843 220 | R280 047 093 | R5 061 739        | R8 817 555      | R253 428 311 |

The above implies that about 51% of the value of the water infrastructure and 44% of the value of the sewerage infrastructure has been consumed. The Opening Cost of the water and sewerage infrastructure that will need to be replaced over the next five years (RUL < 5 yrs) is R9.970 million. The asset renewal needs for the water infrastructure assets over the next ten years is R4.450 million per year. The reinvestment required is R3.879 million in the first five years and R40.618 million in the second five-year period. The age of 42.78% of the water infrastructure assets is greater than twenty years. The asset renewal needs for the sewerage infrastructure assets over the next ten years is R4.992 million per year. The reinvestment required is R6.091 million in the first five years and R43.831 million in the second five-year period. The age of 28.76% of the sewerage infrastructure assets is greater than twenty years.

Most of the maintenance work currently carried out on the water and sewerage infrastructure are re-active and it is critical for the Municipality to increase their maintenance budget for water and sewerage infrastructure in order to ensure that the required preventative maintenance work is also carried out. The Asset Management Plan needs to indicate the risks associated with the inadequate refurbishment and maintenance of the various water and sewerage infrastructure.

It is important for Swartland Municipality to allocate adequate funds for the refurbishment, replacement and maintenance of their existing infrastructure, which is critical to ensure the sustainability of the services that are provided by the Municipality. All possible external sources of funding to assist with the development of the bulk infrastructure and additional sources need to be identified.



### Water Services Operation and Maintenance

Design-out Maintenance, Preventative Maintenance and Corrective or Breakdown Maintenance are practised by Swartland Municipality (Planned and unplanned preventative and corrective maintenance). Adequate resources, information and activity control and management are in place to ensure proper operation and maintenance of the water and sewerage infrastructure.

The CRC of the water infrastructure is R2 467 733 000 (Opening Cost of water infrastructure in Asset Register R929 187 293) and the CRC of the sewerage infrastructure is R1 624 162 740 (Opening Cost of sewerage infrastructure in Asset Register is R881 197 918). Annual budgets of R49 354 659 and R32 483 254 are needed for the refurbishment / replacement of the old water and sewerage infrastructure (Best Practice).

### Water Resources

Treated water is supplied to Malmesbury, Moorreesburg, Yzerfontein, Darling, Riebeek Kasteel, Riebeek Wes, Koringberg and Ongegend by the West Coast District Municipality, from their Withoogte and Swartland WTWs, through the West Coast District Municipality's two bulk water distribution systems. A Service Level Agreement between the West Coast District Municipality and Swartland Municipality is in place for the provision of bulk potable water to the various towns.

The supply from Paardenberg Dam is to supplement the supply to Malmesbury, Abbottsdale, Kalbaskraal, Riverlands and Chatsworth from the Municipality's own local source. Three boreholes at Riverlands are also used as supplementary sources.

The Western Cape experienced a severe drought over the period 2015 to 2017, with some relief during the winter months of the following years. This drought over the period 2015 to 2017 impacted severely on the assurance of bulk water supply by the West Coast District Municipality to Swartland Municipality from the WCWSS and the yield of the Municipality's own existing surface and groundwater sources. WC/WDM measures to lower the current water requirements and the augmentation of the West Coast District Municipality's existing water sources, as well as the augmentation of Swartland Municipality's own water resources with groundwater were therefore critical over this period.

The West Coast District Municipality applied to the DWS in December 2013 to increase the allocation from the System to initially 18.087 million m<sup>3</sup>/a for the Withoogte supply area, which is to be increased to 30.3 million m<sup>3</sup>/a by 2033, and to 6.39 million m<sup>3</sup>/a for the Swartland supply area (to be increased to 11.1 million m<sup>3</sup>/a by 2033). The current raw water abstraction Licence No. 01/G10F/A/5903 of October 2017 list the following volumes allocated to the respective WSAs, which include operational, treatment and bulk conveyance losses.

| Volumes allocated to the respective WSAs in Licence No. 01/G10F/A/5903   |                   |                 |                       |
|--------------------------------------------------------------------------|-------------------|-----------------|-----------------------|
| Name                                                                     | Resource Name     | WSA             | Maximum Volume (Ml/a) |
| Withoogte from Misverstand Weir                                          | Berg River        | Saldanha LM     | 20 427.000            |
|                                                                          |                   | Swartland LM    | 1 573.600             |
|                                                                          |                   | Berg River LM   | 1 439.400             |
| Swartland from Voëlvlei Dam                                              | Berg River        | Swartland LM    | 7 900.000             |
|                                                                          |                   | Drakenstein LM  | 300.000               |
| Langebaan Aquifer Boreholes 1 & 2                                        | Langebaan Aquifer | Saldanha Bay LM | 675.000               |
| Langebaan Aquifer Boreholes 3 & 4                                        |                   | Saldanha Bay LM | 675.000               |
| Total Allocation for the West Coast District Municipality                |                   |                 | 32 990.000            |
| Total Allocation for the West Coast District Municipality from the WCWSS |                   |                 | 31 640.000            |

DWS's Reconciliation Strategies, as completed during 2016, indicated that the current water sources do not have adequate supply to cater for the current and long-term future water requirements of the various towns. The DWS is currently busy with the updating of the All Towns Reconciliation Strategies for the Western Cape, but updated strategies for Swartland Municipality are not yet available.



The table below gives an overview of the years in which the annual water requirements are likely to exceed the licence volumes from the WCWSS.

| Years in which the annual water requirements are likely to exceed the total licence volumes for Swartland Municipality from the WCWSS |                                                        |                                                |                                                 |                       |
|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------|-------------------------------------------------|-----------------------|
| Distribution System                                                                                                                   | Total Licence Volume for Swartland Municipality (Ml/a) | Annual Growth on 2024/2025 Demand (Low Growth) | Annual Growth on 2024/2025 Demand (High Growth) | WSDP Projection Model |
| Withoogte System                                                                                                                      | 1 573.600                                              | 2048                                           | 2036                                            | 2046                  |
| Swartland System                                                                                                                      | 7 900.000                                              | Over                                           | Over                                            | Over                  |

Note: The severe drought in the Western Cape, over the period 2015 to 2017, impacted on the assurance of supply from the WCWSS, which resulted in severe water restrictions implemented by the Swartland Municipality in order to lower the current water requirements and to ensure that the systems don't "run dry" during the drought period.

A number of resource augmentation studies were previously completed by the DWS for the WCWSS, by the West Coast District Municipality for the West Coast Region and by Swartland Municipality for the towns in their Management Area. A desktop study of these previous augmentation studies was completed during the last financial year. The following recommendations with regard to water resource augmentation options available to Swartland Municipality were made based on the findings and conclusions contained in the desktop study.

- Swartland Municipality should continue to implement their WC/WDM Strategy for both the bulk water distribution systems and the internal water reticulation systems of the towns. Treatment Losses, NRW and Water Losses need to be monitored on a monthly basis.
- Investigate the cost of small groundwater schemes for Koringberg and Riebeeck Wes. These are the only two towns where the yields of the newly drilled boreholes are adequate to provide a high percentage of the town's existing demand. The groundwater will require additional treatment and blending options will need to be considered.
- Compile a Feasibility Study for a bulk groundwater augmentation scheme for the Swartland Voëlvlei bulk water distribution system from the target areas included in the "Pre-Feasibility Study of Potential Water Sources for the Area Served by the West Coast District Municipality Phase 1: Assessment of Development Potential of Groundwater Resources" Report.
- The URV of R25-39/kl for a groundwater supply scheme for Yzerfontein from the Grootwater Aquifer is high and should be seen as a possible medium- to long-term possible intervention.
- An investigation has to be carried out into the Colenso Fault Zone close to Darling if the Municipality considers supplying Darling with groundwater. A possible groundwater scheme for Darling should be seen as a possible medium- to long-term possible intervention.
- Continue to reuse treated effluent from the four main WWTWs for irrigation purposes in order to reduce the demand for potable water used for irrigation purposes (Parks, Sport Fields, etc.). The options of "indirect potable reuse" and "direct potable reuse" of treated effluent should be seen as long-term possible interventions.
- Swartland Municipality should engage with the CCT with regard to the following:
  - The CCT's programme for implementing the additional infrastructure to provide the proposed 1 in 200 year level of assurance of supply (Atlantis Managed Aquifer Recharge Scheme Refurbishment Project).
  - The possibility of supplying the towns of Chatsworth and Riverlands with potable water from Atlantis.

- The other options available to Swartland Municipality to purchase bulk potable water from the CCT, which include the following.
  - (1) Purchase potable water from the CCT through their Voëlvlei bulk water pipeline, which supply the Plattekleof reservoir.
  - (2) The possibility for the CCT to take over the Swartland WTW and to provide potable water to Gouda and the Swartland Municipality from the WTW.
  - (3) Any possible other arrangements with the CCT.
- Swartland Municipality should engage with DWS and the TCTA to discuss the options available for an increased future allocation from the WCWSS for Swartland Municipality, through the implementation of the Berg River Voëlvlei Augmentation Scheme (BRVAS) project or the other future augmentation projects.
- Engage with Saldanha Bay Municipality and the West Coast District Municipality if the proposed Saldanha Bay desalination plant project is started. A possible desalination plant for Yzerfontein should only be seen as a long-term possible intervention.

An Investigation, Feasibility Study and Cost Estimation was completed for the proposed Chatsworth / Riverlands Bulk Water Supply Upgrades in June 2024. The conclusions and recommendations from the study were as follows:

**Conclusions:** The Pella, Riverlands, and Kalbaskraal areas in Swartland Municipality are expected to grow in the near future, increasing their requirements for potable water. Currently, the existing bulk supply infrastructure to these areas is constrained and is insufficient to cater for the anticipated future water demand, and thus requires upgrading.

It was determined that extensive upgrades to the existing bulk infrastructure would be needed in order to accommodate these areas, costing approximately R90.9 million (2021/2022 Rand Value, including preliminary and general costs, contingencies and professional service provider fees, but excluding VAT, EIA studies, registration of servitudes and possible land acquisition) (GLS, 2020b).

The June 2020 Water Master Plan proposed that Swartland Municipality investigate purchasing water from the CCT and constructing a bulk pipeline connecting the Pella Reservoirs to the Chatsworth Reservoirs.

A pipeline connecting Pella Reservoirs to Chatsworth's Reservoirs is possible. From review of previous reports, a site investigation, and discussion with impacted parties and landowners, a recommended possible pipeline route was determined. Despite trying to minimize impact on the public, private landowners, affected parties and the environment, the recommended route will have some degree of impact, which will need to be considered in future design, construction, and operation and maintenance phases.

Based on this investigation and available information, the cost estimate to implement the recommended option is R32.23 million. This estimate is at 2024 Rand Value, excludes VAT, and includes rough estimates for fees, investigations, disbursements, P&G, and contingencies. As stated earlier, investigation into the agreement that would be required between CCT and Swartland Municipality in order to purchase water for Chatsworth and surrounding areas is outside the scope of this study. It should be noted, however, that a lengthy consultation process is anticipated to finalise the agreement; possibly between 12 to 18 months. This process is likely to delay construction of the pipeline and may result in water being available after demand is realised in Chatsworth and surrounding areas.

**The Recommendations from the investigation were as follows:**

- Proceed with further investigation into the sourcing of potable water from CCT to serve Chatsworth and surrounding areas.
- Conduct economic analysis and comparative costing of alternative upgrading options to supply Chatsworth.
- Conduct a cost-benefit analysis, including consideration of possible increased water security given that CCT is currently augmenting their bulk water supply with alternative water sources to surface water.
- Proceed with the consultation with CCT on requirements

**Water Services Institutional Arrangements and Customer Services**

Swartland Municipality is the WSA for the entire Municipal Management Area. A Service Level Agreement is in place with the West Coast District Municipality for the provision of bulk potable water to most of the towns in Swartland Municipality's Management Area. The West Coast District Municipality operate and maintain the Withoogte and Swartland bulk water distribution systems.

The DWS also approved the additional requested allocation of 1 000 MI/a over and above the initial allocation of 660 MI/a from the planned Berg River Voëlklei Augmentation Scheme (BRVAS), which gives Swartland Local Municipality a total allocation of 1 660 MI/a from the planned scheme.

The 2022-2027 WSDP was approved by the Swartland Municipality's Council on the 25<sup>th</sup> of July 2024. Swartland Municipality annually compile WSDP Performance- and Water Services Audit Reports and take it to Council with the Municipality's Annual Report.

**Swartland Municipality's Vulnerability Index for 2024 was indicated as 0.15 "Low Vulnerability" in the Municipal Strategic Self-Assessment.** The only one area of concern evident from the 2024 assessment is Financial Asset Management (High Vulnerability). The vulnerability of all the other key service areas are low, except basic sanitation that is moderate.

The Municipal staff is continuously exposed to training opportunities, skills development and capacity building at a technical, operations and management level in an effort to create a more efficient overall service to the users. A Workplace Skills Plan is compiled annually and the specific training needs of the personnel, with regard to water and wastewater management are determined annually.

The WWTWs in Swartland Municipality's Management Area and the Process Controllers working at these plants were registered according to the new Regulation 3630 requirements of the DWS. The West Coast District Municipality also ensured that the two bulk WTWs and the Process Controllers working at these two plants were also registered according to the new Regulation 3630 requirements.

A comprehensive Customer Services and Complaints system is in place at Swartland Municipality and the Municipality has maintained a high and a very consistent level of service to its urban water consumers. After hour emergency requests are being dealt with by the control room on a twenty-four-hour basis. All water and sanitation related complaints are logged through the system in order to ensure quick response to complaints. A Client Services Charter is also in place, with specific water supply and sewage services standards.

Barriers implemented by Swartland Municipality against contamination and deteriorating water quality include the following:

- Service Delivery Agreement between the West Coast District Municipality and Swartland Municipality. A Monitoring Committee is also in place.
- Protection at points of abstraction such as Paardenberg Dam and the boreholes (Abstraction Management).

- Protection and maintenance of the distribution systems. This includes ensuring an adequate disinfectant residual at all times, rapid response to pipe bursts and other leaks, regular cleaning of reservoirs, keeping all delivery points tidy and clean, etc.

Three other important barriers implemented by Swartland Municipality against poor quality drinking water that are a prerequisite to those listed above are as follows:

- A well-informed Council and municipal managers that understand the extreme importance of and are committed to providing adequate resources for continuous professional operation and maintenance of the water supply system.
- Competent managers and supervisors in the technical department who are responsible for water supply services lead by example and are passionate about monitoring and safeguarding drinking water quality.
- Well informed community members and other consumers of water supply services that know how to protect the water from becoming contaminated once it has been delivered, that have respect for water as a precious resource and that adhere to safe hygiene and sanitation practices.



## SWARTLAND MUNICIPALITY

### ANNUAL WSDP PERFORMANCE AND WATER SERVICES AUDIT REPORT FOR 2024/2025

#### BACKGROUND

##### Appointment

iX engineers was appointed by Swartland Municipality to assist them with the compilation of their WSDP Performance- and Water Services Audit Report, which forms part of their annual report for the 2024/2025 financial year. The purpose of the WSDP Performance- and Water Services Audit Report is to report on the implementation of Swartland Municipality's previous year's WSDP, for the 2024/2025 financial year.

The DWS developed the "Annual Water Services Development Plan Performance- and Water Services Audit Report" template during 2014, to assist Municipalities with the drafting of their reports. iX engineers agreed with Swartland Municipality to follow this template as far as possible.

##### Purpose

Swartland Municipality is required in terms of Section 18 of the Water Services Act, 1997 (Act No.108 of 1997), as well as the "Regulations relating to compulsory national standards and measures to conserve water", as issued in terms of sections 9(1) and 73(1)(j) of the Water Services Act, to report on the implementation of its WSDP during each financial year and to include a water services audit in such an annual report.

Section 62 of the Water Services Act requires the Minister to monitor every WSI in order to ensure compliance with the prescribed national standards. This regulation requires a WSA to complete and submit a WSDP Performance- and Water Services Audit every financial year. The WSDP Performance- and Water Services Audit is designed to monitor the compliance of the WSA and other WSIs with these regulations. The Water Services Act allows the audit to be used as a tool to compare actual performance of the WSA against the targets and indicators set in their WSDP. The purpose of the WSDP Performance- and Water Services Audit is as follows:

- To monitor compliance with the Act and these regulations.
- To compare actual performance against targets contained in the WSDPs.
- To identify possibilities for improving water conservation and water demand management.

The WSDP Performance- and Water Services Audit Report will give an overview of the implementation of the Municipality's previous year's WSDP, for the 2024/2025 financial year, and can be seen as an annexure to Swartland Municipality's Annual Report. The Annual Report is compiled as required by the Local Government: Municipal Systems Act, Act no 32 of 2000 (Section 46) and the Local Government: Municipal Finance Management Act, Act no 56 of 2003 (Section 121). The WSDP Performance- and Water Services Audit Report contain the following detail information:

- The Municipality's performance with regard to their KPIs for water and sewerage services for the 2024/2025 financial year, as included in the Municipality's SDBIP.
- The Municipality's Performance with regard to DWS's Blue-, Green- and No Drop Assessments. Blue drop status is awarded to those water schemes that comply with 95% criteria on drinking water quality management. Green drop status is awarded to those WWTWs that comply with 90% criteria on key selected indicators on wastewater quality management. No drop status is awarded to those WSAs that comply with 90% criteria to water use efficiency (Acceptable performance in water demand management in the municipal sector).

- DWS's Scorecard for assessing the potential for WC/WDM efforts in the Municipality.
- Information to be included in a WSDP Performance- and Water Services Audit as stipulated under section 9 of the Water Services Act, "Guidelines for Compulsory National Standards" and also required by DWS's 2014 WSDP Performance- and Water Services Audit Report guidelines.
- Information on the implementation of the various WSDP activities, as included under the WSDP Business Elements in DWS's WSDP guidelines.

The Revised Compulsory National Water and Sanitation Standards, as published in Government Gazette No.52814 of 6 June 2025, include the following Water Services Audit, as a component in the WSDP, requirements (Section 26):

26 (1) A Water Services Institution must include a water services audit on its annual report on the implementation of its WSDP required in terms of section 18(1) and (2)(a) of the Act, which must also be submitted to the department, using the WSDP platform at [www.ws.dws.gov.za/wsdp.aspx](http://www.ws.dws.gov.za/wsdp.aspx), on an annual basis, within four months after the end of each municipal financial year.

(2) A Water Services audit must assess compliance to these compulsory Standards and must as a minimum, contain the following details:

(a) The quantity of water services provided which must include at least-

- (i) the quantity of water used by each user sector.
- (ii) the quantity of water provided to the Water Services Institution by another Water Services Institution.
- (iii) the quantity of wastewater received at sewage treatment works.
- (iv) the quantity of wastewater not discharged to wastewater treatment works and approved for use by the Water Services Institution.
- (v) the quantity of faecal sludge received at faecal sludge treatment works and beneficiated.
- (vi) the quantity of faecal sludge disposed and the coordinates on the disposal site.

(b) The levels of services rendered which must include at least-

- (i) the number of user connections in each user sector.
- (ii) the number of households provided with water through communal water services works.
- (iii) the number of consumers connected to a water reticulation system where pressures rise above 90m at the consumer connection.
- (iv) the number of households provided with sanitation services through consumer installations connected to the sewerage system.
- (v) the number of households with access to basic sanitation services.
- (vi) the number of new water supply connections.
- (vii) the number of new sanitation connections.
- (viii) the number of on-site sanitation systems in each user sector.
- (ix) the number of households provided with onsite sanitation through communal facilities.
- (x) the type of on-site sanitation systems.
- (xi) the number of new onsite sanitation systems provided.
- (xii) the number of sanitation systems with full containments (tanks or pits).

- (c) The numbers provided in compliance with sub-regulation (2) (b) must be expressed as a percentage of the total number of connections or households.
- (d) A record of all water measuring devices installed (including Bulk, Zonal, District, and Consumer meters) and water measuring devices tested must include at least-
  - (i) the number of new measuring devices installed.
  - (ii) the number of measuring devices tested (in-situ-verification).
  - (iii) the number of measuring devices replaced expressed as a percentage of the total number of meters installed on an annual basis.
- (e) The water quality sampling programme required under regulation 5 (4), the results of the comparison set out in regulation 5 (5) and any non-compliance reported as required under regulation 5 (6).
- (f) Water conservation and water demand management must include at least-
  - (i) the results of the water balance as set out in regulation 17.
  - (ii) the total quantity of water losses and non-revenue water.
  - (iii) the demand management activities undertaken.
  - (iv) measures implemented to reduce water losses and non-revenue water.
  - (v) the progress made in the installation of water efficient devices; and
  - (vi) performance measured against key performance indicators.
- (g) A Water Services Institution's compliance status to regulation 20 (2) and 20 (3) and progress of implementation toward achieving compliance.
- (h) The integrated response plan to mitigate the adverse impact of electricity supply on critical water services infrastructure.
- (i) Evaluation of efficacy of measures implemented to address risk findings from the annual condition assessment and three-yearly process audits as required for water treatment works and the water supply network (sub-regulation 22) and the wastewater system (sub-regulation 23).
- (j) A Water Services Institution must provide evidence of the operations and maintenance expenditure per annum which must be measured in relation to the original budget contemplated in regulation 24 (2).



## A. WATER SERVICES AUTHORITY PROFILE

### A.1. Map of Water Services Authority Area of Jurisdiction

Swartland Municipality is located in the West Coast District of the Western Cape, as indicated on the figure below.



Figure A.1.1: Location of Swartland Municipality in the Western Cape

The figure below gives an overview of Swartland Municipality's Management Area and the settlements located in the Area.



Figure A.1.2: Swartland Municipality's Management Area

The various schemes supplied with bulk water by Swartland Municipality are discussed in more detail under Section A.3. The existing water and sewerage infrastructure of the various distribution systems are indicated on the Aerial Maps included in the Municipality's detail WSDP documents.

## A.2. Water Services Administration and Organization

Swartland Municipality is the WSA for the entire Municipal Management Area. The West Coast District Municipality acts as Bulk Water Services Provider for Swartland Municipality and provides bulk potable water to all the towns in Swartland Municipality's Management Area and is responsible for the operation and maintenance of the bulk infrastructure. Swartland Municipality's approved Organogram is included in Annexure G (Council approved 28 March 2024). The table below gives the contact details of the persons responsible for water services management and planning within Swartland Municipality.

| Table A.2.1: Water Services Administrative Structure |                                                                                    |
|------------------------------------------------------|------------------------------------------------------------------------------------|
| Accounting Officer                                   |                                                                                    |
| Designation                                          | Municipal Manager                                                                  |
| Name                                                 | Joggie Scholtz                                                                     |
| Telephone Nr.                                        | 022-4879 400                                                                       |
| Fax Nr.                                              | 022-4879 440                                                                       |
| Cell Nr.                                             | 082 823 7542                                                                       |
| Email                                                | <a href="mailto:joggiescholtz@swartland.org.za">joggiescholtz@swartland.org.za</a> |
| WSA Manager                                          |                                                                                    |
| Designation                                          | Director: Civil Engineering Services                                               |
| Name                                                 | Louis Zikmann                                                                      |
| Telephone Nr.                                        | 022-487 9400                                                                       |
| Fax Nr.                                              | 022-487 9440                                                                       |
| Cell Nr.                                             | 082 823 7543                                                                       |
| Email                                                | <a href="mailto:louis@swartland.org.za">louis@swartland.org.za</a>                 |
| WSP Manager                                          |                                                                                    |
| Designation                                          | Director: Civil Engineering Services                                               |
| Name                                                 | Louis Zikmann                                                                      |
| Telephone Nr.                                        | 022-487 9400                                                                       |
| Fax Nr.                                              | 022-487 9440                                                                       |
| Cell Nr.                                             | 082 823 7543                                                                       |
| Email                                                | <a href="mailto:louis@swartland.org.za">louis@swartland.org.za</a>                 |
| WSDP Manager                                         |                                                                                    |
| Designation                                          | Senior Manager: Solid Waste and Trade Services                                     |
| Name                                                 | Esias de Jager                                                                     |
| Telephone Nr.                                        | 022-487 9400                                                                       |
| Fax Nr.                                              | 022-487 9440                                                                       |
| Cell Nr.                                             | 084 620 6025                                                                       |
| Email                                                | <a href="mailto:dejagere@swartland.org.za">dejagere@swartland.org.za</a>           |
| IDP Manager                                          |                                                                                    |
| Designation                                          | IDP Manager                                                                        |
| Name                                                 | Olivia Fransman                                                                    |
| Telephone Nr.                                        | 022-487 9400                                                                       |
| Fax Nr.                                              | 022-487 9440                                                                       |
| Cell Nr.                                             | -                                                                                  |
| Email                                                | <a href="mailto:fransmano@swartland.org.za">fransmano@swartland.org.za</a>         |

### A.3. Water Services Overview

Swartland Municipality is situated within the Breede-Olifants Water Management Area (WMA). The Municipality is located within the West Coast Region of the Western Cape Province, in which the following municipalities are also located:

- Matzikama Municipality;
- Cederberg Municipality;
- Bergrivier Municipality;
- Saldanha Bay Municipality; and
- West Coast District Municipality.

Swartland Municipality consists of 12 individual wards and is the only WSA within the Swartland Municipality's Management Area. It is also the Water Services Provider (WSP). Potable bulk water is however provided to Swartland Municipality by the West Coast District Municipality through the Swartland and Withoogte bulk water distribution systems. Swartland Municipality's responsibility as WSA also extends to the rural areas within its Municipal boundary, which prior to July 2003 had fallen under the jurisdiction of the West Coast District Municipality. Swartland Municipality's Management Area includes the following areas:

- The large towns of Malmesbury (Wards 8, 9, 10 and 11) and Moorreesburg (Ward 2);
- The small towns of Yzerfontein (Ward 5), Darling (Ward 6), Koringberg (Ward 1), Riebeek Kasteel (Ward 12), Riebeek Wes (Ward 3);
- The rural hamlets of Abbotsdale and Kalbaskraal (Ward 7), Riverlands and Chatsworth (Ward 4); and
- The rural farm areas (Ward 1).

Swartland Municipality receives bulk potable water from the West Coast District Municipality. The District Municipality operates the Withoogte and Swartland bulk schemes, which is served by the Berg River as main raw water supply. The bulk supply of Withoogte is augmented by abstraction of groundwater from the Langebaan Road Groundwater Aquifer System. Both these bulk distribution schemes are cross-border schemes and supply water to Swartland Municipality, Bergrivier Municipality and Saldanha Bay Municipality. The towns in Swartland Municipality's Management Area supplied with bulk potable water by the West Coast District Municipality are Malmesbury (Abbotsdale, Riverlands, Chatsworth and Kalbaskraal), Moorreesburg, Yzerfontein, Darling, Riebeek Kasteel, Riebeek Wes, Koringberg and Ongegund (PPC).

Swartland Municipality supplements the water received from West Coast District Municipality for the Malmesbury distribution system with water from the Paardenberg Dam, which is treated by an automatic backwash rapid gravity sand filter, before it is distributed to Abbotsdale, Kalbaskraal, Riverlands and Chatsworth. A further three boreholes in Riverlands are also used as additional supply for Riverlands and Chatsworth. The groundwater is disinfected, before it is blended with the other potable water and distributed to the consumers in Riverlands and Chatsworth respectively.

The existing water distribution systems for which Swartland Municipality is responsible are as follows:

**Swartland Bulk Distribution System** (Raw water from the Voëlvei dam gravitates to the Swartland WTW. The raw water is pumped through the Swartland WTW and the final treated water from the WTW is then further pumped into the bulk distribution network by the Gouda and Kasteelberg pump stations, which are located at the WTW). The following towns receive potable water from the Swartland Bulk System.

**Riebeek Wes and Ongegund:** Potable water is distributed from the Kasteelberg Reservoirs on the Swartland Scheme (West Coast DM) to the Ongegund Reservoirs and the Riebeek Wes Reservoirs (Three Riebeek Wes reservoirs with a total capacity of 2.69 MI and one Ongegund reservoir with a total capacity of 2.30 MI). Potable water is distributed from these reservoirs to the Ongegund and Riebeek Wes consumers.

**Riebeek Kasteel:** Potable water is distributed from the Kasteelberg Reservoirs on the Swartland Scheme (West Coast DM) via Riebeek Wes to two storage reservoirs in Riebeek Kasteel, with a combined capacity of 1.86 MI. Potable water is distributed from these two reservoirs to the Riebeek Kasteel consumers.

**Malmesbury (Abbotsdale, Kalbaskraal, Riverlands and Chatsworth):** Potable water is supplied via the Swavelberg and Rustfontein Pump Stations to the Glen Lilly reservoirs on the Swartland Scheme. The potable water is supplemented downstream with water from the Paardenberg Dam, which is treated by an automatic backwash rapid gravity sand filter and disinfected, before it is distributed to Abbotsdale, Kalbaskraal, Riverlands and Chatsworth. Additional groundwater is also supplied from three boreholes in Riverlands, which is pumped into the Chatsworth reservoirs (after disinfection) and blended with the other potable water, before it is distributed to the Riverlands and Chatsworth consumers.

**Darling:** Potable water is distributed from the Glen Lilly reservoirs on the Swartland Scheme (West Coast DM) via the Darling PS to the Darling Reservoirs (three reservoirs with a combined capacity of 3.43 MI). Potable water is distributed from the three reservoirs to the Darling consumers.

**Yzerfontein:** Potable water is supplied from the Swartland Scheme (West Coast DM) via the Yzerfontein Pump Station in Darling to the Yzerfontein reservoirs (Two reservoirs with combined capacity of 4.37 MI). Potable water is distributed from the two reservoirs to the Yzerfontein consumers.

**Withoogte Bulk Distribution System** (Raw water from the Misverstand dam on the Berg River is pumped via the Misverstand pump station to the Withoogte WTWs from where treated water is distributed to the following two towns in Swartland Municipality's Management Area.

**Moorreesburg:** Potable water is pumped from the Withoogte WTWs (West Coast DM) to the three reservoirs in Moorreesburg with a total capacity of 8.17 MI. Potable water is distributed from the three reservoirs to the Moorreesburg consumers.

**Koringberg:** Potable water is pumped from the Withoogte WTWs (West Coast DM) to the two Koringberg reservoirs with a total capacity of 0.51 MI capacity, from where it is distributed to the Koringberg consumers.

The table below gives an overview of the major bulk infrastructure components of the Swartland bulk water distribution system.

| Table A.3.1: Existing water infrastructure of the Swartland Bulk Water Distribution System |                |               |            |
|--------------------------------------------------------------------------------------------|----------------|---------------|------------|
| Bulk and Network Pipelines                                                                 |                |               |            |
| Component                                                                                  | Bulk (km)      | Network (km)  | Total (km) |
| Water Pipelines                                                                            | 260.589        | 207.255       | 467.844    |
| Reservoirs                                                                                 |                |               |            |
| Name                                                                                       | Type           | Capacity (MI) | TWL        |
| Swartland WTW Clear well                                                                   | WTW            | Unknown       | Unknown    |
| Kamp reservoir No.1                                                                        | Reservoir      | 0.072         | Unknown    |
| Kamp reservoir No.2                                                                        | Reservoir      | 0.072         | Unknown    |
| Kasteelberg No.1                                                                           | Reservoir      | 4.525         | 286.0      |
| Kasteelberg No.2                                                                           | Reservoir      | 4.525         | 286.0      |
| Kasteelberg No.3                                                                           | Reservoir      | 4.525         | 286.0      |
| Kasteelberg No.4                                                                           | Reservoir      | 4.525         | 286.0      |
| Glen Lilly No.1                                                                            | Reservoir      | 8.000         | 263.5      |
| Glen Lilly No.2                                                                            | Reservoir      | 8.000         | 263.5      |
| Glen Lilly No.3                                                                            | Reservoir      | 25.000        | 263.5      |
| Wildschutsvlei                                                                             | Balancing Tank | 0.300         | 189.7      |
| <b>Total</b>                                                                               |                | <b>59.544</b> |            |

| Table A.3.1: Existing water infrastructure of the Swartland Bulk Water Distribution System |                                                    |              |                   |                     |         |                 |
|--------------------------------------------------------------------------------------------|----------------------------------------------------|--------------|-------------------|---------------------|---------|-----------------|
| Water Pump Stations                                                                        |                                                    |              |                   |                     |         |                 |
| Name                                                                                       | Location / Description                             | No. of Pumps | Operate / Standby | Q (l/s)             | H (m)   | Capacity (MI/d) |
| Darling PS                                                                                 | At Darling: Boost to Darling reservoir             | 2            | 1/1               | 47 <sup>(1)</sup>   | 75      | 4.061           |
| Yzerfontein PS                                                                             | At Darling: Boost to Wildschutsvlei Balancing Tank | 2            | 1/1               | 69 <sup>(1)</sup>   | 88      | 5.962           |
| Rustfontein PS                                                                             | Booster: Kasteelberg to Glen Lily reservoirs       | 2            | 0/2               | 235 <sup>(1)</sup>  | 40      | 20.304          |
| Swavelberg PS                                                                              | Booster: Kasteelberg to Glen Lily reservoirs       | 2            | 0/2               | 302 <sup>(1)</sup>  | 40      | 26.093          |
| Swartland RW PS                                                                            | Swartland WTW (Canal through WTW)                  | 3            | 2/3               | 369 <sup>(2)</sup>  | 17      | 31.882          |
| Swartland PS                                                                               | Swartland WTW (WTW to Kasteelberg reservoirs)      | 4            | 2/2               | 354 <sup>(3)</sup>  | 46      | 30.586          |
| Gouda PS                                                                                   | Swartland WTW (WTW to Gouda reservoir)             | 2            | 1/2               | 21.2 <sup>(2)</sup> | 125     | 1.832           |
| Kamp PS                                                                                    | Swartland WTW (WTW to Kamp reservoir)              | 2            | 1/1               | Unknown             | Unknown | Unknown         |

Note: ( ) Number of pumps used for calculation of Q in l/s

The design capacities of the various treatment components of the Swartland WTW are summarised in the table below.

| Table A.3.2: Design capacities of the various components of the Swartland WTW |            |        |
|-------------------------------------------------------------------------------|------------|--------|
| Design Capacities                                                             |            |        |
| Component                                                                     | MI/a       | MI/d   |
| Overall capacity                                                              | 10 590.000 | 29.000 |
| Flocculation                                                                  | 11 000.000 | 30.140 |
| Clarifying                                                                    | 11 000.000 | 30.140 |
| Filtration                                                                    | 10 590.000 | 29.000 |
| Chlorination                                                                  | 10 590.000 | 29.000 |

The table below gives an overview of the maximum month average daily flow and the average annual daily flow for the last ten financial years for the Swartland WTW.

| Table A.3.3: Swartland WTW's historical flows and percentage utilisation of design capacity |                                  |                                                               |                           |                                                        |
|---------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------|---------------------------|--------------------------------------------------------|
| Year                                                                                        | Maximum Month Average Daily Flow | WTW Operational Capacity for Maximum Month Average Daily Flow | Average Annual Daily Flow | WTW Operational Capacity for Average Annual Daily Flow |
|                                                                                             | MI/d                             | %                                                             | MI/d                      | %                                                      |
| 2015/2016                                                                                   | 24.226 (Febr)                    | 83.54                                                         | 18.492                    | 63.77                                                  |
| 2016/2017                                                                                   | 19.816 (Febr)                    | 68.33                                                         | 15.847                    | 54.64                                                  |
| 2017/2018                                                                                   | 13.958 (Jul)                     | 48.13                                                         | 11.734                    | 40.46                                                  |
| 2018/2019                                                                                   | 16.171 (Febr)                    | 55.76                                                         | 13.332                    | 45.97                                                  |
| 2019/2020                                                                                   | 17.663 (Febr)                    | 60.91                                                         | 13.853                    | 47.77                                                  |
| 2020/2021                                                                                   | 21.089 (Febr)                    | 72.72                                                         | 16.072                    | 55.42                                                  |
| 2021/2022                                                                                   | 23.392 (Febr)                    | 80.66                                                         | 17.850                    | 61.55                                                  |
| 2022/2023                                                                                   | 25.441 (Febr)                    | 87.73                                                         | 18.869                    | 65.06                                                  |
| 2023/2024                                                                                   | 25.455 (Febr)                    | 87.78                                                         | 21.798                    | 75.17                                                  |
| 2024/2025                                                                                   | 26.824 (Febr)                    | 92.50                                                         | 22.196                    | 76.54                                                  |

The table below gives an overview of the major water infrastructure components, for the various internal distribution systems, in Swartland Municipality's Management Area.

| A.3.4: Existing internal water infrastructure                |                                                                  |                               |                                     |                  |                    |                   |
|--------------------------------------------------------------|------------------------------------------------------------------|-------------------------------|-------------------------------------|------------------|--------------------|-------------------|
| Water Distribution System                                    | Bulk Supply                                                      | WTW                           |                                     | Bulk and Network | Number of Water PS | Total Res Storage |
|                                                              | (Resources)                                                      | Operated by the West Coast DM | Add Disinfection                    | (km)             | (RW/PW)            | (MI)              |
| Malmesbury (Abbotsdale, Kalbaskraal, Riverlands, Chatsworth) | Berg River (Voëlville), Paardenberg Dam and three Riverlands bhs | 29 MI/d (Swartland WTW)       | Malmesbury, Kalbaskraal, Riverlands | 240.398          | 9 (PW)             | 37.543            |
| Moorreesburg                                                 | Berg River (Misverstand)                                         | 72 MI/d (Withoogte WTW)       | -                                   | 72.702           | 1 (PW)             | 8.172             |
| Riebeek Kasteel                                              | Berg River (Voëlville)                                           | 29 MI/d (Swartland WTW)       | -                                   | 26.568           | 1 (PW)             | 1.862             |
| Riebeek Wes                                                  | Berg River (Voëlville)                                           | 29 MI/d (Swartland WTW)       | -                                   | 21.985           | 1 (PW)             | 2.692             |
| Ongegund                                                     | Berg River (Voëlville)                                           | 29 MI/d (Swartland WTW)       | -                                   | 7.361            | 1 (PW)             | 2.298             |
| Koringberg                                                   | Berg River (Misverstand)                                         | 72 MI/d (Withoogte WTW)       | -                                   | 10.353           | -                  | 0.508             |
| Darling                                                      | Berg River (Voëlville)                                           | 29 MI/d (Swartland WTW)       | -                                   | 46.285           | -                  | 3.432             |
| Yzerfontein                                                  | Berg River (Voëlville)                                           | 29 MI/d (Swartland WTW)       | -                                   | 39.422           | -                  | 4.375             |

The table below gives an overview of the major sewerage infrastructure components, for the various sewer drainage systems, in Swartland Municipality's Management Area.

| A.3.5: Existing sewerage infrastructure   |                            |                    |                                |
|-------------------------------------------|----------------------------|--------------------|--------------------------------|
| Sewer Drainage Systems                    | Sewer Drainage Network (m) | Number of Sewer PS | WWTW Hydraulic Design Capacity |
|                                           | m                          | No.                | M/d                            |
| Malmesbury and Abbotsdale                 | 147.705                    | 7                  | 10.000                         |
| Kalbaskraal                               | 7.197                      | 2                  | 0.157                          |
| Riverlands and Chatsworth                 | 5.106                      | 2                  | 0.270                          |
| Moorreesburg                              | 59.870                     | -                  | 2.000                          |
| Riebeek Kasteel, Riebeek Wes and Ongegund | 51.581                     | 10                 | 1.900                          |
| Koringberg                                | 2.612                      | -                  | 0.030                          |
| Darling                                   | 40.930                     | 2                  | 1.500                          |

The table below gives a summary of the existing hydraulic design capacities and current flows at each of the WWTWs, as well as the final effluent quality compliance percentages for the 2024/2025 financial year.

| Table A.3.6: Existing hydraulic design capacities and flows at each of the WWTWs and final effluent compliance percentages for 2024/2025 |                             |                               |                                |                                                           |                                              |                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|--------------------------------|-----------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------|
| WWTW                                                                                                                                     | Existing Hydraulic Capacity | Peak Month Average Daily Flow | Average Daily Flow (2024/2025) | Average Wet Weather Flow (Jul'24, Aug'24, May'25, Jun'25) | Average Daily Flow as a % of Design Capacity | Final Effluent Compliance for 2024/2025                       |
|                                                                                                                                          | MI/d                        | MI/d                          | MI/d                           | MI/d                                                      | %                                            |                                                               |
| Malmesbury                                                                                                                               | 10.000                      | 7.228 (Jul)                   | 5.609                          | 6.090                                                     | 56.09%                                       | Microbiological: 92.9%<br>Chemical: 93.9%<br>Physical: 80.6%  |
| Kalbaskraal                                                                                                                              | 0.157                       | Unknown                       | 0.097                          | Unknown                                                   | 61.78%                                       | Microbiological: 100.0%<br>Chemical: 58.3%<br>Physical: 91.7% |
| Riverlands/Chatsworth                                                                                                                    | 0.270                       | Unknown                       | 0.200                          | Unknown                                                   | 74.07%                                       | Microbiological: 8.3%<br>Chemical: 35.4%                      |



| Table A.3.6: Existing hydraulic design capacities and flows at each of the WWTWs and final effluent compliance percentages for 2024/2025 |                             |                               |                                |                                                           |                                              |                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------|--------------------------------|-----------------------------------------------------------|----------------------------------------------|--------------------------------------------------------------|
| WWTW                                                                                                                                     | Existing Hydraulic Capacity | Peak Month Average Daily Flow | Average Daily Flow (2024/2025) | Average Wet Weather Flow (Jul'24, Aug'24, May'25, Jun'25) | Average Daily Flow as a % of Design Capacity | Final Effluent Compliance for 2024/2025                      |
|                                                                                                                                          | MI/d                        | MI/d                          | MI/d                           | MI/d                                                      | %                                            |                                                              |
|                                                                                                                                          |                             |                               |                                |                                                           |                                              | Physical: 63.9%                                              |
| Moorreesburg                                                                                                                             | 2.000                       | 2.101 (Aug)                   | 1.262                          | 1.574                                                     | 63.10%                                       | Microbiological: 76.5%<br>Chemical: 83.7%<br>Physical: 91.7% |
| Riebeek Valley                                                                                                                           | 1.900                       | 2.870 (Jul)                   | 1.278                          | 1.834                                                     | 67.26%                                       | Microbiological: 53.8%<br>Chemical: 67.3%<br>Physical: 77.8% |
| Koringberg                                                                                                                               | 0.030                       | Unknown                       | 0.109                          | Unknown                                                   | 363.33%                                      | Microbiological: 0.0%<br>Chemical: 27.1%<br>Physical: 33.3%  |
| Darling                                                                                                                                  | 1.500                       | 1.805 (Mar)                   | 1.478                          | 1.554                                                     | 98.53%                                       | Microbiological: 92.3%<br>Chemical: 81.6%<br>Physical: 86.1% |

The organic design capacities of the activated sludge WWTWs and the current loadings at these WWTWs are indicated in the table below.

| Table A.3.7: Existing organic design capacities and historical loadings at the activated sludge WWTWs |                         |              |                      |              |                      |              |                      |
|-------------------------------------------------------------------------------------------------------|-------------------------|--------------|----------------------|--------------|----------------------|--------------|----------------------|
| WWTW                                                                                                  | Organic Design Capacity | 2024/2025    |                      | 2023/2024    |                      | 2022/2023    |                      |
|                                                                                                       |                         | Average Load | % of Design Capacity | Average Load | % of Design Capacity | Average Load | % of Design Capacity |
|                                                                                                       |                         | kg COD/d     | %                    | kg COD/d     | %                    | kg COD/d     | %                    |
| Malmesbury                                                                                            | 10 000                  | 8 199        | 81.99                | 7 917        | 79.2                 | 7 690        | 76.9                 |
| Moorreesburg                                                                                          | 2 000                   | 1 013        | 50.65                | 1 068        | 53.4                 | 1 067        | 53.4                 |
| Riebeek Valley                                                                                        | 1 500                   | 837          | 55.80                | 655          | 43.6                 | 748          | 49.9                 |
| Darling                                                                                               | 1 500                   | 1 840        | 122.67               | 1 585        | 105.7                | 1 828        | 121.9                |

Following the 2011 Census survey it became evident that there was an extensive migration into the Municipal Area. The population figure for Swartland Municipality in 2001 was 72 108 (18 675 households). This figure increased substantially to 113 763 in 2011 (29 324 households) at an average annual population growth rate of 4.67%/a.

The Community Survey of 2016 from Statistics South Africa estimate the 2016 population for Swartland Municipality at 133 762 persons and the permanent households at 39 139, at an average household size of 3.4 persons per household.

The published 2022 Census population for Swartland Municipality was 148 331 persons (Annual growth rate of 2.6% over the period 2011 to 2022) and the number of permanent households was 44 856. The 2022 Census data is not yet available per town and it was therefore not possible to update Swartland Municipality's projected population and households per town (system) at this stage.

The 2024 Socio Economic Profile for Swartland Municipality includes a population of 146 802 and the number of permanent households at 35 688 for 2024 for Swartland Municipality. Swartland Municipality's 2025/2026 IDP include the 2022 Census population and households.

The 2024/2025 population for the various water distribution systems were estimated by applying the annual growth rates as indicated in Table A.3.8 to the 2011 Census data. The current population figures and the annual population growth percentages used in the WSDP Performance- and Water Services Audit Report are aligned with the figures used in DWS's GeoDatabase.



The future estimated annual population growth percentages, as listed in the table below, were agreed with the Municipality's Engineering Department during January 2014.

| <b>Table A.3.8: Estimated future annual population growth percentages, population and households per distribution system</b> |                                                    |                                       |                                       |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------|---------------------------------------|
| <b>Distribution System</b>                                                                                                   | <b>Estimated future annual Population Growth %</b> | <b>Projected 2024/2025 population</b> | <b>Projected 2024/2025 households</b> |
| Darling                                                                                                                      | 2.0%                                               | 13 479                                | 3 622                                 |
| Koringberg                                                                                                                   | 4.0%                                               | 2 021                                 | 528                                   |
| Malmesbury                                                                                                                   | 4.5%                                               | 63 617                                | 16 788                                |
| Abbotsdale                                                                                                                   | 3.0%                                               | 5 525                                 | 1 357                                 |
| Chatsworth & Riverlands                                                                                                      | 6.0%                                               | 8 643                                 | 2 359                                 |
| Kalbaskraal                                                                                                                  | 5.0%                                               | 4 546                                 | 1 243                                 |
| Moorreesburg                                                                                                                 | 4.0%                                               | 21 441                                | 6 157                                 |
| Riebeek Kasteel                                                                                                              | 7.0%                                               | 11 473                                | 3 241                                 |
| Ongegund (PPC)                                                                                                               | 3.0%                                               | 360                                   | 90                                    |
| Riebeek Wes                                                                                                                  | 6.0%                                               | 9 462                                 | 2 348                                 |
| Yzerfontein                                                                                                                  | 4.0%                                               | 1 898                                 | 816                                   |
| Farms                                                                                                                        | 3.5%                                               | 51 023                                | 11 525                                |
| <b>TOTALS</b>                                                                                                                | <b>4.2%</b>                                        | <b>193 488</b>                        | <b>50 074</b>                         |

The tables below give an overview of the projected population and permanent number of households and the water and sanitation service levels in Swartland Municipality's Management Area.

| Table A.3.9: Water Services Overview (Water) |               |                |               |                |                                     |                       |                           |                            |                |                           |                            |
|----------------------------------------------|---------------|----------------|---------------|----------------|-------------------------------------|-----------------------|---------------------------|----------------------------|----------------|---------------------------|----------------------------|
| Settlement Type                              | 2011/2012     |                | 2024/2025     |                | Water category                      |                       |                           |                            |                |                           |                            |
|                                              | Households    | Population     | Households    | Population     | Adequate: Formal                    | Adequate: Informal    | Adequate: Shared Services | Water resources needs only | O&M needs only | Infrastructure needs only | Infrastructure & O&M needs |
|                                              |               |                |               |                | Infrastructure, O&M & Resource need | No Services: Informal | No Services: Formal       |                            |                |                           |                            |
| <b>URBAN</b>                                 |               |                |               |                |                                     |                       |                           |                            |                |                           |                            |
| <b>Metropolitan Area</b>                     |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
|                                              |               |                |               |                |                                     |                       |                           |                            |                |                           |                            |
| <b>Sub-Total</b>                             | <b>0</b>      | <b>0</b>       | <b>0</b>      | <b>0</b>       |                                     |                       |                           |                            |                |                           |                            |
| <b>Formal Town</b>                           |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
| Malmesbury                                   | 9 473         | 35 897         | 16 788        | 63 617         | P                                   |                       | P                         |                            |                |                           |                            |
| Abbotsdale                                   | 924           | 3 762          | 1 357         | 5 525          | P                                   |                       | P                         |                            |                |                           |                            |
| Chatsworth/Riverlands                        | 1 017         | 3 696          | 1 409         | 4 843          | P                                   |                       | P                         |                            |                |                           |                            |
| Kalbaskraal                                  | 659           | 2 411          | 1 243         | 4 546          | P                                   |                       | P                         |                            |                |                           |                            |
| Riebeek Kasteel                              | 1 345         | 4 761          | 3 241         | 11 473         | P                                   |                       | P                         |                            |                |                           |                            |
| Riebeek Wes                                  | 1 049         | 4 229          | 2348          | 9462           | P                                   |                       | P                         |                            |                |                           |                            |
| Darling                                      | 2 800         | 10 420         | 3 622         | 13 479         | P                                   |                       | P                         |                            |                |                           |                            |
| Moorreesburg                                 | 3 698         | 12 877         | 6 157         | 21 441         | P                                   |                       | P                         |                            |                |                           |                            |
| Koringberg                                   | 317           | 1 214          | 528           | 2 021          | P                                   |                       | P                         |                            |                |                           |                            |
| Yzerfontein                                  | 490           | 1 140          | 816           | 1 898          | P                                   |                       | P                         |                            |                |                           |                            |
| <b>Sub-Total</b>                             | <b>21 772</b> | <b>80 407</b>  | <b>37 509</b> | <b>138 306</b> |                                     |                       |                           |                            |                |                           |                            |
| <b>Townships</b>                             |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
|                                              |               |                |               |                |                                     |                       |                           |                            |                |                           |                            |
| <b>Sub-Total</b>                             | <b>0</b>      | <b>0</b>       | <b>0</b>      | <b>0</b>       |                                     |                       |                           |                            |                |                           |                            |
| <b>Informal Settlements</b>                  |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
| Chatsworth/Riverlands                        | 89            | 356            | 950           | 3 800          |                                     |                       |                           |                            |                |                           | P                          |
| <b>Sub-Total</b>                             | <b>89</b>     | <b>356</b>     | <b>950</b>    | <b>3 800</b>   |                                     |                       |                           |                            |                |                           |                            |
| <b>Working towns &amp; service centres</b>   |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
| Ongegund (PPC)                               | 94            | 376            | 90            | 360            | P                                   |                       | P                         |                            |                |                           |                            |
| <b>Sub-Total</b>                             | <b>94</b>     | <b>376</b>     | <b>90</b>     | <b>360</b>     |                                     |                       |                           |                            |                |                           |                            |
| <b>Sub-Total: (Urban)</b>                    | <b>21 955</b> | <b>81 139</b>  | <b>38 549</b> | <b>142 466</b> |                                     |                       |                           |                            |                |                           |                            |
| <b>RURAL</b>                                 |               |                |               |                |                                     |                       |                           |                            |                |                           |                            |
| <b>Rural / Farming</b>                       |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
| Farms                                        | 7 369         | 32 624         | 11 525        | 51 023         | P                                   |                       | P                         |                            |                |                           | P                          |
| <b>Sub-Total</b>                             | <b>7 369</b>  | <b>32 624</b>  | <b>11 525</b> | <b>51 023</b>  |                                     |                       |                           |                            |                |                           |                            |
| <b>Informal Settlements</b>                  |               |                |               |                | Adequate                            | Below RDP             |                           |                            |                | None                      |                            |
|                                              |               |                |               |                |                                     |                       |                           |                            |                |                           |                            |
| <b>Sub-Total</b>                             | <b>0</b>      | <b>0</b>       | <b>0</b>      | <b>0</b>       |                                     |                       |                           |                            |                |                           |                            |
| <b>Sub-Total (Rural)</b>                     | <b>7 369</b>  | <b>32 624</b>  | <b>11 525</b> | <b>51 023</b>  |                                     |                       |                           |                            |                |                           |                            |
| <b>TOTAL</b>                                 | <b>29 324</b> | <b>113 763</b> | <b>50 074</b> | <b>193 488</b> |                                     |                       |                           |                            |                |                           |                            |

| Table A.3.10: Water Services Overview (Sanitation) |               |                |               |                |                            |                                     |                           |                            |                |                           |
|----------------------------------------------------|---------------|----------------|---------------|----------------|----------------------------|-------------------------------------|---------------------------|----------------------------|----------------|---------------------------|
| Settlement Type                                    | 2011/2012     |                | 2024/2025     |                | Sanitation category        |                                     |                           |                            |                |                           |
|                                                    | Households    | Population     | Households    | Population     | Adequate: Formal           | Adequate: Informal                  | Adequate: Shared Services | Water resources needs only | O&M needs only | Infrastructure needs only |
|                                                    |               |                |               |                | Infrastructure & O&M needs | Infrastructure, O&M & Resource need | No Services: Informal     | No Services: Formal        |                |                           |
| <b>URBAN</b>                                       |               |                |               |                |                            |                                     |                           |                            |                |                           |
| <b>Metropolitan Area</b>                           |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
|                                                    |               |                |               |                |                            |                                     |                           |                            |                |                           |
| <b>Sub-Total</b>                                   | <b>0</b>      | <b>0</b>       | <b>0</b>      | <b>0</b>       |                            |                                     |                           |                            |                |                           |
| <b>Formal Town</b>                                 |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
| Malmesbury                                         | 9 473         | 35 897         | 16 788        | 63 617         | P                          | P                                   |                           |                            |                |                           |
| Abbotsdale                                         | 924           | 3 762          | 1 357         | 5 525          | P                          | P                                   |                           |                            |                |                           |
| Chatsworth/Riverlands                              | 1 017         | 3 696          | 1 409         | 4 843          | P                          | P                                   |                           |                            |                |                           |
| Kalbaskraal                                        | 659           | 2 411          | 1 243         | 4 546          | P                          | P                                   |                           |                            |                |                           |
| Riebeek Kasteel                                    | 1 345         | 4 761          | 3 241         | 11 473         | P                          | P                                   |                           |                            |                |                           |
| Riebeek Wes                                        | 1 049         | 4 229          | 2 348         | 9 462          | P                          | P                                   |                           |                            |                |                           |
| Darling                                            | 2 800         | 10 420         | 3 622         | 13 479         | P                          | P                                   |                           |                            |                |                           |
| Moorreesburg                                       | 3 698         | 12 877         | 6 157         | 21 441         | P                          | P                                   |                           |                            |                |                           |
| Koringberg                                         | 317           | 1 214          | 528           | 2 021          | P                          | P                                   |                           |                            |                |                           |
| Yzerfontein                                        | 490           | 1 140          | 816           | 1 898          | P                          | P                                   |                           |                            |                |                           |
| <b>Sub-Total</b>                                   | <b>21 772</b> | <b>80 407</b>  | <b>37 509</b> | <b>138 306</b> |                            |                                     |                           |                            |                |                           |
| <b>Townships</b>                                   |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
|                                                    |               |                |               |                |                            |                                     |                           |                            |                |                           |
| <b>Sub-Total</b>                                   | <b>0</b>      | <b>0</b>       | <b>0</b>      | <b>0</b>       |                            |                                     |                           |                            |                |                           |
| <b>Informal Settlements</b>                        |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
| Chatsworth/Riverlands                              | 89            | 356            | 950           | 3 800          |                            |                                     |                           |                            |                | P                         |
| <b>Sub-Total</b>                                   | <b>89</b>     | <b>356</b>     | <b>950</b>    | <b>3 800</b>   |                            |                                     |                           |                            |                |                           |
| <b>Working towns &amp; service centres</b>         |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
| Ongegund (PPC)                                     | 94            | 376            | 90            | 360            | P                          | P                                   |                           |                            |                |                           |
| <b>Sub-Total</b>                                   | <b>94</b>     | <b>376</b>     | <b>90</b>     | <b>360</b>     |                            |                                     |                           |                            |                |                           |
| <b>Sub-Total: (Urban)</b>                          | <b>21 955</b> | <b>81 139</b>  | <b>38 549</b> | <b>142 466</b> |                            |                                     |                           |                            |                |                           |
| <b>RURAL</b>                                       |               |                |               |                |                            |                                     |                           |                            |                |                           |
| <b>Rural / Farming</b>                             |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
| Farms                                              | 7 369         | 32 624         | 11 525        | 51 023         | P                          | P                                   |                           |                            |                | P                         |
| <b>Sub-Total</b>                                   | <b>7 369</b>  | <b>32 624</b>  | <b>11 525</b> | <b>51 023</b>  |                            |                                     |                           |                            |                |                           |
| <b>Informal Settlements</b>                        |               |                |               |                | Adequate                   | Below RDP                           | None                      |                            |                |                           |
|                                                    |               |                |               |                |                            |                                     |                           |                            |                |                           |
| <b>Sub-Total</b>                                   | <b>0</b>      | <b>0</b>       | <b>0</b>      | <b>0</b>       |                            |                                     |                           |                            |                |                           |
| <b>Sub-Total (Rural)</b>                           | <b>7 369</b>  | <b>32 624</b>  | <b>11 525</b> | <b>51 023</b>  |                            |                                     |                           |                            |                |                           |
| <b>TOTAL</b>                                       | <b>29 324</b> | <b>113 763</b> | <b>50 074</b> | <b>193 488</b> |                            |                                     |                           |                            |                |                           |

## B. WSDP PERFORMANCE REPORT

### B.1. WSDP Reference and Status

DWS's new WSDP website was rolled-out to all the WSAs in the West Coast District on the 31<sup>st</sup> of October 2017. The Municipality updated their WSDP during the 2023/2024 financial year, according to DWS's new WSDP website requirements for the new five-year WSDP cycle (2022-2027). The table below gives an overview of Swartland Municipality's WSDP status.

| Table B.1.1: WSDP and Reporting Reference |                                                                                                                                                                        |                 |               |               |                |                |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------|---------------|----------------|----------------|
| Nr                                        | WSDP Title and Reference                                                                                                                                               | Status          | Date          | WSDP Year     | Financial Year | Reporting year |
| 1                                         | 2022-2027 WSDP, Administration, Information and Comprehensive Overview Report, Future Demand and Functionality Requirements Report, WSDP IDP Water Sector Input Report | Drafted:        | March 2024    | Year 1        | 2022/23        | Year - 2       |
|                                           |                                                                                                                                                                        | Comment submit: | May/June 2024 | Year 2        | 2023/24        | Year - 1       |
|                                           |                                                                                                                                                                        | Finalised:      | 30 June 2024  | <b>Year 3</b> | <b>2024/25</b> | <b>Year 0</b>  |
|                                           |                                                                                                                                                                        | Adopted:        | 25 July 2024  | Year 4        | 2025/26        | Year + 1       |
|                                           |                                                                                                                                                                        | Published:      | July 2024     | Year 5        | 2026/27        | Year + 2       |

#### Legend:

|  |                                                       |
|--|-------------------------------------------------------|
|  | Past Financial Years                                  |
|  | Previous Financial Year (financial year of reporting) |
|  | Future Years                                          |

### B.2. Performance on Water Services Objectives and Strategies

The IDP is the Municipality's single most strategic document that drives and directs all implementation and related processes. The Municipality's budget is developed based on the priorities, programmes and projects of the IDP, after which a Service Delivery and Budget Implementation Plan (SDBIP) is developed, to ensure that the organisation actually delivers on the IDP targets.

The SDBIP is the process plan and performance indicator / evaluation for the execution of the budget. The SDBIP is being used as a management, implementation and monitoring tool that assists and guide the Executive Mayor, Councillors, Municipal Manager, Senior Managers and the community. The plan serves as an input to the performance agreements of the Municipal Manager and Directors. It also forms the basis for the monthly, quarterly, mid-year and the annual assessment report and performance assessments of the Municipal Manager and Directors.

Finally, the Annual Report, of which the WSDP Performance- and Water Services Audit Report forms a part, records the success or otherwise of the previous year's implementation.

| Table B.2.1: Performance on Water Services Objectives and Strategies per WSDP Topic |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----|-------------|---------|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Nr                                                                                  | Objective<br><br>Strategy                                                                                                                         | Key Performance Indicator                                                                                                                                                       | Inclusion |     | WSDP Year 1 |         | WSDP Year 2 |           | WSDP Year 3 |           | WSDP Year 4 |           | WSDP Year 5 |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 | (yes/no)  |     | FY 1        | 2020/21 | FY 2        | 2021/2022 | FY 3        | 2022/2023 | FY 4        | 2023/2024 | FY 5        | 2024/2025 |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 | WSDP      | IDP | Target      | Actual  | Target      | Actual    | Target      | Actual    | Target      | Actual    | Target      | Actual    |
| WSDP Topic 1: Administration                                                        |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
| WSDP Topic 2: Demographics                                                          |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
| WSDP Topic 3: Service levels                                                        |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     | Improved access to water, sanitation and refuse removal.                                                                                          | % of urban households with access to basic water supply (at least piped (tap) water within 200 meters from dwelling).                                                           | -         | -   | 100%        | 100%    | 100%        | 100%      | -           | -         | -           | -         | -           | -         |
| D1142                                                                               | Number of formal residential properties with piped water connections                                                                              | Number of formal residential properties with piped water connections.                                                                                                           | Yes       | Yes |             |         |             |           | 22602       | 24774     | 21942       | 22060     | 22124       | 23672     |
|                                                                                     | Improved access to water, sanitation and refuse removal.                                                                                          | % of urban households with access to basic sanitation (at least a flush toilet, chemical toilet or pit toilet with ventilation (VIP)).                                          | -         | -   | 100%        | 100%    | 100%        | 100%      | -           | -         | -           | -         | -           | -         |
| D1143                                                                               | Number of formal residential properties with access to sewerage services                                                                          | Supplying of sanitation services to municipal residential account holders as at 30 June                                                                                         | Yes       | Yes |             |         |             |           | 20409       | 31160     | 22124       | 21850     | 21851       | 22511     |
| WSDP Topic 4: Socio economic                                                        |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
| WSDP Topic 5: Water Services Infrastructure                                         |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     | Asset safeguarding                                                                                                                                | A condition assessment and a review of the remaining useful life of all assets in the department done and a certification in this regard provided to the Head Asset Management. | -         | -   | 100%        | 100%    | 100%        | 100%      | 100%        | 100%      | 100%        | 100%      | -           | -         |
| D1149                                                                               | Master plans reviewed and updated if required annually by June                                                                                    | Master plans reviewed and updated if required annually by June                                                                                                                  | Yes       | Yes | -           | -       | -           | -         | -           | -         | 1           | 1         | 1           | 1         |
| WSDP Topic 6: Operation Maintenance                                                 |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
| D3469                                                                               | Manage the % water losses within the National Treasury norm annually by end of June                                                               | % total water losses                                                                                                                                                            | Yes       | Yes | < 17%       | 19.7%   | < 17%       | 23.1%     | < 17%       | 13.2%     | 21%         | 18.78%    | 21%         | 19.66%    |
| WSDP Topic 7: Associated services                                                   |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
| WSDP Topic 8: Conservation and Demand management                                    |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
| WSDP Topic 9: Water Resources                                                       |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     | Berg River Voëlvllei Augmentation Scheme (BRVAS) - conclusion of section 33 process by July 2023 (Water resource augmentation)                    | Berg River Voëlvllei Augmentation Scheme (BRVAS) - conclusion of section 33 process by July 2023                                                                                | -         | -   | -           | -       | -           | -         | -           | -         | 1           | 1         | -           | -         |
|                                                                                     | Submit report to Council by November 2023 to consider a water supply agreement with the DWS to partake in the BRVAS (Water resource augmentation) | Submit report to Council by November 2023 to consider a water supply agreement with the DWS to partake in the BRVAS                                                             | -         | -   | -           | -       | -           | -         | -           | -         | 1           | 1         | -           | -         |
| D1146                                                                               | Submit report to Council by March 2025 to consider direct purchase of water for Chatsworth from City of Cape Town                                 | Submit report to Council by March 2025 to consider direct purchase of water for Chatsworth from City of Cape Town                                                               | Yes       | Yes | -           | -       | -           | -         | -           | -         | -           | -         | 1           | 1         |
| WSDP Topic 10: Financial profile                                                    |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     | Capital expenditure in line with budget and time frames                                                                                           | % of capital budget spent                                                                                                                                                       | -         | -   | 95%-105%    | 98.4%   | 95%-105%    | 100.8%    | 95%-105%    | 92.2%     | 95%         | 95.0%     | -           | -         |
|                                                                                     | Capital project implementation                                                                                                                    | Average % completion of capital projects                                                                                                                                        | -         | -   | 90%         | 99.0%   | 90%         | 100.0%    | 95%         | 92.2%     | -           | -         | -           | -         |
|                                                                                     | Operating expenditure in line with budget and time frames                                                                                         | % of operating budget spent                                                                                                                                                     | -         | -   | 90%-100%    | 85.9%   | 90%-100%    | 98.0%     | 90%-100%    | 91.2%     | 90%         | 90.0%     | -           | -         |
|                                                                                     | Spending of grants                                                                                                                                | % spending of grants                                                                                                                                                            | -         | -   | 100%        | 100%    | 100%        | 97%       | 100%        | 83.7%     | 100%        | 100.0%    | -           | -         |
| WSDP Topic 11: Institutional Arrangements profile                                   |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     | Ensure that accurate revenue estimates are prepared in relation to operating requirements                                                         | Projected tariff increases determined for the budget of the new financial year                                                                                                  | -         | -   | 100%        | 100%    | -           | -         | -           | -         | 100%        | 100%      | -           | -         |
|                                                                                     | Workforce training roll-out                                                                                                                       | % of planned training sessions according to the Workplace Skills Plan realised.                                                                                                 | -         | -   | 100%        | 100%    | 100%        | 100%      | 100%        | 100%      | 100%        | 100%      | -           | -         |
| WSDP Topic 12: Social and Customer service requirements                             |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     | Correspondence addressed in a timely manner                                                                                                       | % of all correspondence recorded by Collaborator less than 60 days old                                                                                                          | -         | -   | 90%         | 95.2%   | -           | -         | -           | -         | -           | -         | -           | -         |
| WSDP Topic 13: Needs development plan                                               |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |
|                                                                                     |                                                                                                                                                   |                                                                                                                                                                                 |           |     |             |         |             |           |             |           |             |           |             |           |

KPIs: Director Civil Engineering Services

The following water and sanitation related investigations were successfully completed during the last financial year.

- The WSDP Performance- and Water Services Audit Report for the 2023/2024 financial year was finalised and approved by Council as part of the Annual Report. The non-revenue water balance models were updated for each of the distribution systems (Up to the end of June 2024) as part of the WSDP Performance- and Water Services Audit Process.
- The infrastructure constructed during the 2024/2025 financial year were added to the Asset Register and the Asset Register was updated.
- Concept Design Report was compiled for the Upgrading of Bulk Water Pipeline Wesbank Reservoir to Malmesbury / Abbotsdale, April 2025, BVi Consulting Engineers.
- Continuation Upgrading of Malmesbury, Moorreesburg, Riebeek Kasteel and Darling Wastewater Treatment Works – Malmesbury WWTW Clarifier Bridge Assessment and Replacement, June 2025, Zutari.
- The Wastewater Risk Abatement Plans (W<sub>2</sub>RAPs) for the various WWTWs and sewer drainage networks were updated, February 2025, iX Engineers.
- Process Audit Reports were compiled for the Various Wastewater Treatment Plants for the Period July 2022 to June 2024, February 2025, Chris Swartz Water Utilization Engineers.
- Swartland Municipality continues with the implementation of their Water and Wastewater Quality Sampling Programmes (Both Operational and Compliance Monitoring). The effluent discharged by industrial consumers is also monitored by Swartland Municipality on a monthly basis.

The Municipality previously received the following awards / acknowledgements with regard to DWS's Blue-, Green- and No Drop assessments:

- **Swartland Municipality performed excellent with regard to DWS's 2023 Blue Drop Assessment. The Withoogte System received Blue Drop status with a score of 96.48%. The Swartland system received a Blue Drop score of 93.33%.** The Blue Drop Risk Ratings for both systems were in the low-risk category (<50%). The Blue Drop scores were supported by an excellent site assessment score of 92% for the Swartland WTW and 95% for the Withoogte WTW.
- **Swartland Municipality achieved an "Excellent" score of 91% for the 2023 No Drop Assessment and was acknowledged as one of the top performing WSAs in the country.**
- **Swartland Municipality is performing above average with regard to wastewater quality management, with an overall Green Drop Score of 89% for DWS's 2021 Green Drop assessment.** The Green Drop Scores for the Malmesbury-, Riebeek Valley- and Darling WWTW were between 89% and 95% (Three potential Green Drop certified systems). **Swartland Municipality was also acknowledged by the DWS as one of the Top 3 Best Performing Municipalities for their Green Drop Results.**
- Swartland Municipality also received their 2023 Green Drop Risk Ratings, as included in the 2023 Green Drop Progress Report. The overall Cumulative Risk Rating of Swartland Municipality was 51.2% (Medium Risk). The Wastewater Risk Ratings were at low risk for the Malmesbury WWTW (<50%), at medium risk for the Chatsworth, Darling and Kalbaskraal WWTW (50% - <70%) and high risk for the Koringberg, Moorreesburg and Riebeek Valley WWTW (70% - <90%).

### B.3. Status of Water Services Projects

The table below gives an overview of the water and sewerage capital infrastructure expenditure per project for the last financial year.

| Table B3.1: Water Services Projects Status and Performance |                                                                                       |           |     |                          |                      |                                |                |            |                   |                         |                |           |                 |                        |
|------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------|-----|--------------------------|----------------------|--------------------------------|----------------|------------|-------------------|-------------------------|----------------|-----------|-----------------|------------------------|
| Nr                                                         | Project Title and Description                                                         | Inclusion |     | Total Project Cost R'000 | Project Progress (%) | Year 0 Performance - FY2024/25 |                |            | Funding Source(s) | Project Category / Type | Planned Period |           | Project Status  | Actual Completion Year |
|                                                            |                                                                                       | WSDP      | IDP |                          |                      | FY Budget R'000                | Expended R'000 | %          |                   |                         | From FY        | To FY     |                 |                        |
| 1                                                          | Equipment water                                                                       | Yes       | Yes | R729                     | 76%                  | R53                            | R52            | 99%        | CRR               | Water                   | 2013/2014      | 2027/2028 | In Progress     | -                      |
| 2                                                          | Connections: Water Meters (New /Replacements)                                         | Yes       | Yes | R6 702                   | 49%                  | R941                           | R819           | 87%        | CRR               | Water                   | 2019/2020      | 2027/2028 | In Progress     | -                      |
| 3                                                          | Darling SDW2.4 & SDW2.5, SDW1.2 & SDW2.1 water network upgrades (for housing project) | Yes       | Yes | R5 175                   | 23%                  | R475                           | R475           | 100%       | CRR               | Water                   | 2023/2024      | 2027/2028 | In Progress     | -                      |
|                                                            |                                                                                       |           |     | R531                     | 100%                 | R531                           | R531           | 100%       | MIG               | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 4                                                          | Chatsworth/Riverlands upgrade bulk water supply                                       | Yes       | Yes | R22 209                  | 4%                   | R500                           | R499           | 100%       | CRR               | Water                   | 2023/2024      | 2027/2028 | In Progress     | -                      |
| 5                                                          | Replace Existing Water pipe: Illinge Lethu                                            | Yes       | Yes | R4 075                   | 100%                 | R3 775                         | R3 775         | 100%       | WCED, CRR         | Water                   | 2023/2024      | 2024/2025 | Complete        | 2024/2025              |
| 6                                                          | Water networks: Upgrades and Replacement (CRR)                                        | Yes       | Yes | R25 139                  | 22%                  | R5 424                         | R5 439         | 100%       | CRR               | Water                   | 2024/2025      | 2027/2028 | In Progress     | -                      |
| 7                                                          | Malmesbury Irrigation: Replace pumpsets                                               | Yes       | Yes | R377                     | 100%                 | R377                           | R377           | 100%       | CRR               | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 8                                                          | Mobile water pumps x 4 (replacement)                                                  | Yes       | Yes | R107                     | 100%                 | R150                           | R107           | 72%        | CRR               | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 9                                                          | Compactor replacement x 3                                                             | Yes       | Yes | R236                     | 100%                 | R236                           | R236           | 100%       | CRR               | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 10                                                         | Malmesbury SMW1.3 Wesbank Reservoir to Malm/Abb pipeline                              | Yes       | Yes | R16 400                  | 3%                   | R500                           | R500           | 100%       | CRR               | Water                   | 2024/2025      | 2027/2028 | In Progress     | -                      |
| 11                                                         | Water Reticulation and Connection: Illinge Lethu                                      | Yes       | Yes | R2 083                   | 100%                 | R2 083                         | R2 083         | 100%       | WCED              | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 12                                                         | Donated PPE: Water Infrastructure (Mount Royal)                                       | Yes       | Yes | R0                       | -                    | R501                           | R0             | 0%         | CRR               | Water                   | 2024/2025      | -         | Not implemented | -                      |
| 13                                                         | Water Meters: Gains                                                                   | Yes       | Yes | R10                      | 100%                 | R0                             | R10            | 0%         | CRR               | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 14                                                         | Malmesbury De Hoop Serviced Sites Phase 1 (Water)                                     | Yes       | Yes | R30 056                  | 38%                  | R11 440                        | R11 440        | 100%       | Human Settlements | Water                   | 2024/2025      | 2027/2028 | In Progress     | -                      |
| 15                                                         | Silvertown: IBS                                                                       | Yes       | Yes | R0                       | -                    | R71                            | R0             | 0%         | Human Settlements | Water                   | 2024/2025      | -         | Not implemented | -                      |
| 16                                                         | Moorreesburg Serviced Sites (645) (Water)                                             | Yes       | Yes | R7 863                   | 100%                 | R9 394                         | R7 863         | 84%        | Human Settlements | Water                   | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 17                                                         | Darling Serviced Sites (186) Phase 1 (Water)                                          | Yes       | Yes | R17 102                  | 100%                 | R9 004                         | R7 985         | 89%        | Human Settlements | Water                   | 2023/2024      | 2024/2025 | Complete        | 2024/2025              |
| 18                                                         | Equipment: Sewerage telemetry                                                         | Yes       | Yes | R729                     | 57%                  | R35                            | R0             | 0%         | CRR               | Sewerage                | 2013/2024      | 2027/2028 | In Progress     | -                      |
| 19                                                         | Equipment: Sewerage                                                                   | Yes       | Yes | R431                     | 74%                  | R34                            | R34            | 99%        | CRR               | Sewerage                | 2013/2014      | 2027/2028 | In Progress     | -                      |
| 20                                                         | Schoonspruit: Pipe Replacement                                                        | Yes       | Yes | R9 657                   | 86%                  | R3 000                         | R3 000         | 100%       | CRR               | Sewerage                | 2022/2023      | 2025/2026 | In Progress     | -                      |
| 21                                                         | Upgrading of bulk collectors: Darling                                                 | Yes       | Yes | R5 796                   | 100%                 | R5 565                         | R5 496         | 99%        | CRR, MIG          | Sewerage                | 2023/2024      | 2024/2025 | Complete        | 2024/2025              |
| 22                                                         | Upgrading of bulk collectors: Moorreesburg                                            | Yes       | Yes | R317                     | 100%                 | R0                             | R117           | -          | CRR, MIG          | Sewerage                | 2023/2024      | 2024/2025 | Complete        | 2024/2025              |
| 23                                                         | Malmesbury WWTW: Replace Clarifier Mechanical Equipment                               | Yes       | Yes | R3 100                   | 10%                  | R300                           | R300           | 100%       | CRR               | Sewerage                | 2024/2025      | 2025/2026 | In Progress     | -                      |
| 24                                                         | Sewerage: CK18526 Isuzu FSR750                                                        | Yes       | Yes | R2 324                   | 100%                 | R2 322                         | R2 324         | 100%       | CRR               | Sewerage                | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 25                                                         | Sewer Reticulation and Connection: Illinge Lethu                                      | Yes       | Yes | R517                     | 100%                 | R517                           | R517           | 100%       | WCED              | Sewerage                | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 26                                                         | Donated PPE: Electrical Infrastructure LV (Mount Royal)                               | Yes       | Yes | R0                       | -                    | R940                           | R0             | 0%         | CRR               | Sewerage                | 2024/2025      | -         | Not implemented | -                      |
| 27                                                         | Darling Serviced Sites (186) Phase 1 (Sewerage)                                       | Yes       | Yes | R1 124                   | 100%                 | R1 669                         | R1 124         | 67%        | Human Settlements | Sewerage                | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| 28                                                         | Malmesbury De Hoop Serviced Sites Phase 1 (Sewerage)                                  | Yes       | Yes | R35 153                  | 37%                  | R13 585                        | R13 047        | 96%        | Human Settlements | Sewerage                | 2024/2025      | 2027/2028 | In Progress     | -                      |
| 29                                                         | Moorreesburg Serviced Sites (645) (Sewerage)                                          | Yes       | Yes | R5 772                   | 100%                 | R8 227                         | R5 772         | 70%        | Human Settlements | Sewerage                | 2024/2025      | 2024/2025 | Complete        | 2024/2025              |
| <b>Total</b>                                               |                                                                                       |           |     | <b>R203 713</b>          |                      | <b>R81 649</b>                 | <b>R73 920</b> | <b>91%</b> |                   |                         |                |           |                 |                        |



## B.4. Past Financial Year Water Services Projects Impact Declaration

The impacts of the water and sewerage capital projects, which were implemented by Swartland Municipality in the previous financial year, were as follows.

| Table B.4.1: Past Financial Year Project Impact Declaration |                                                                                         |                   |                              |                  |            |                                                                                                                |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------|------------------------------|------------------|------------|----------------------------------------------------------------------------------------------------------------|
| Nr                                                          | Project Title and Description                                                           | Project Category  | Settlements which benefitted | Nr Beneficiaries |            | Impact Declaration                                                                                             |
|                                                             |                                                                                         |                   |                              | Households       | Population |                                                                                                                |
| 1                                                           | Equipment w ater                                                                        | Other             | Management Area              | -                | -          | Ensure adequate O&M of systems.                                                                                |
| 2                                                           | Connections: Water Meters (New /Replacements)                                           | WC/WDM            | Management Area              | 273              | 1064       | Ensure all w ater usage is metered. Reduce NRW and Water Losses.                                               |
| 3                                                           | Darling SDW2.4 & SDW2.5, SDW1.2 & SDW2.1 w ater netw ork upgrades (for housing project) | Reticulation      | Darling                      | 3622             | 13479      | Provide a higher level of w ater services to new housing development. Ensure adequate w ater supply.           |
| 4                                                           | Chatsw orth/Riverlands upgrade bulk w ater supply                                       | Bulk Pipeline     | Chatsw orth/Riverlands       | 2359             | 8643       | Ensure adequate bulk w ater supply, increased assurance of supply.                                             |
| 5                                                           | Replace Existing Water pipe: Illinge Lethu                                              | Reticulation      | Malmesbury                   | 300              | 1170       | Provide a higher level of w ater services to residents, ensure adequate w ater supply.                         |
| 6                                                           | Water netw orks: Upgrades and Replacement (CRR)                                         | Reticulation      | Management Area              | 218              | 848        | Implementation of pipeline replacement programme to reduce NRW and Water Losses and ensure adequate capacity.  |
| 7                                                           | Malmesbury Irrigation: Replace pumpsets                                                 | Other             | Malmesbury                   | -                | -          | Ensure adequate irrigation pump capacity.                                                                      |
| 8                                                           | Mobile w ater pumps x 4 (replacement)                                                   | Water Pumps       | Management Area              | -                | -          | Ensure adequate pump capacity.                                                                                 |
| 9                                                           | Compactor replacement x 3                                                               | Other             | Management Area              | -                | -          | Ensure adequate O&M of systems.                                                                                |
| 10                                                          | Malmesbury SMW1.3 Wesbank Reservoir to Malm/Abb pipeline                                | Bulk Pipeline     | Malmesbury                   | 1357             | 5525       | Ensure adequate bulk w ater pipeline capacity. Increased assurance of supply.                                  |
| 11                                                          | Water Reticulation and Connection: Illinge Lethu                                        | Reticulation      | Malmesbury                   | 83               | 325        | Provide a higher level of w ater services to residents, ensure adequate w ater supply.                         |
| 12                                                          | Donated PPE: Water Infrastructure (Mount Royal)                                         | Other             | Malmesbury                   | -                | -          | Project w as not implemented                                                                                   |
| 13                                                          | Water Meters: Gains                                                                     | WC/WDM            | Management Area              | 4                | 16         | Ensure all w ater usage is metered. Reduce NRW and Water Losses.                                               |
| 14                                                          | Malmesbury De Hoop Serviced Sites Phase 1 (Water)                                       | Reticulation      | Malmesbury                   | 395              | 1541       | Provide a higher level of w ater services to residents, ensure adequate w ater supply.                         |
| 15                                                          | Silvertown: IBS                                                                         | Reticulation      | Chatsw orth                  | -                | -          | Project w as not implemented                                                                                   |
| 16                                                          | Moorreesburg Serviced Sites (645) (Water)                                               | Reticulation      | Moorreesburg                 | 645              | 2516       | Provide a higher level of w ater services to residents, ensure adequate w ater supply.                         |
| 17                                                          | Darling Serviced Sites (186) Phase 1 (Water)                                            | Reticulation      | Darling                      | 186              | 725        | Provide a higher level of w ater services to residents, ensure adequate w ater supply.                         |
| 18                                                          | Equipment: Sew erage telemetry                                                          | Other             | Management Area              | -                | -          | Ensure proper process control and system management.                                                           |
| 19                                                          | Equipment: Sew erage                                                                    | Other             | Management Area              | -                | -          | Ensure adequate O&M of systems.                                                                                |
| 20                                                          | Schoonspruit: Pipe Replacement                                                          | Drainage netw ork | Malmesbury                   | 120              | 468        | Implementation of pipeline replacement programme to ensure adequate capacity and to prevent blockages.         |
| 21                                                          | Upgrading of bulk collectors: Darling                                                   | Bulk Pipeline     | Darling                      | 3622             | 13479      | Ensure adequate bulk sew er pipeline capacity and to prevent blockages and spillages.                          |
| 22                                                          | Upgrading of bulk collectors: Moorreesburg                                              | Bulk Pipeline     | Moorreesburg                 | 6157             | 21441      | Ensure adequate bulk sew er pipeline capacity and to prevent blockages and spillages.                          |
| 23                                                          | Malmesbury WWTW: Replace Clarifier Mechanical Equipment                                 | WWTW              | Malmesbury                   | -                | -          | Put SST at WWTW back into operation.                                                                           |
| 24                                                          | Sew erage: CK18526 Isuzu FSR750                                                         | Other             | Management Area              | -                | -          | Ensure adequate vehicles for O&M and improved service delivery.                                                |
| 25                                                          | Sew er Reticulation and Connection: Illinge Lethu                                       | Drainage netw ork | Malmesbury                   | 21               | 81         | Provide a higher level of sanitation services to residents, ensure adequate sew er drainage netw ork capacity. |
| 26                                                          | Donated PPE: Electrical Infrastructure LV (Mount Royal)                                 | Other             | Malmesbury                   | -                | -          | Project w as not implemented                                                                                   |
| 27                                                          | Darling Serviced Sites (186) Phase 1 (Sew erage)                                        | Drainage netw ork | Darling                      | 186              | 725        | Provide a higher level of sanitation services to residents, ensure adequate sew er drainage netw ork capacity. |
| 28                                                          | Malmesbury De Hoop Serviced Sites Phase 1 (Sew erage)                                   | Drainage netw ork | Malmesbury                   | 395              | 1541       | Provide a higher level of sanitation services to residents, ensure adequate sew er drainage netw ork capacity. |
| 29                                                          | Moorreesburg Serviced Sites (645) (Sew erage)                                           | Drainage netw ork | Moorreesburg                 | 645              | 2258       | Provide a higher level of sanitation services to residents, ensure adequate sew er drainage netw ork capacity. |
| TOTAL                                                       |                                                                                         |                   |                              | 20588            | 75844      |                                                                                                                |

## C. WATER SERVICES AUDIT REPORT

### C.1. Quantity of Water Services Provided (Water Balance)

The tables below give an overview of the volume of water supplied by the West Coast District Municipality through the Withoogte and Swartland bulk water schemes, the treatment losses at the Withoogte WTW and the Swartland WTW and the bulk water distribution losses for the two bulk schemes.

| Year      | Raw Water  |           |           | Treated Water<br>(System Input Volume) |           | Billed Metered<br>Consumption |           | Totals     |            |            |
|-----------|------------|-----------|-----------|----------------------------------------|-----------|-------------------------------|-----------|------------|------------|------------|
|           | WH         | LOG       | SL        | WH                                     | SL        | WH                            | SL        | Raw        | Treated    | Billed     |
| 2015/2016 | 20 230.454 | 583.318   | 6 749.603 | 18 955.808                             | 6 326.667 | 17 738.149                    | 5 992.835 | 27 563.375 | 25 865.793 | 23 730.984 |
| 2016/2017 | 16 952.798 | 928.765   | 5 784.056 | 16 196.973                             | 5 455.098 | 16 854.138                    | 5 122.162 | 23 665.619 | 22 580.836 | 21 976.300 |
| 2017/2018 | 12 129.606 | 1 055.105 | 4 282.906 | 11 898.399                             | 4 208.092 | 12 614.429                    | 3 783.008 | 17 467.617 | 17 161.596 | 16 397.437 |
| 2018/2019 | 12 626.990 | 412.341   | 4 866.029 | 12 320.023                             | 4 770.391 | 12 410.194                    | 4 384.439 | 17 905.360 | 17 502.755 | 16 794.633 |
| 2019/2020 | 13 127.882 | 118.869   | 5 056.347 | 12 480.771                             | 4 920.110 | 12 526.147                    | 4 623.505 | 18 303.098 | 17 519.750 | 17 149.652 |
| 2020/2021 | 12 918.000 | 170.146   | 5 866.143 | 12 534.000                             | 5 732.805 | 12 792.298                    | 5 190.546 | 18 954.289 | 18 436.951 | 17 982.844 |
| 2021/2022 | 14 560.000 | 224.112   | 6 515.111 | 13 774.000                             | 6 241.020 | 12 712.535                    | 5 812.752 | 21 299.223 | 20 239.132 | 18 525.287 |
| 2022/2023 | 15 468.000 | 408.965   | 6 887.064 | 14 688.000                             | 6 682.462 | 13 902.486                    | 5 687.547 | 22 764.029 | 21 779.427 | 19 590.033 |
| 2023/2024 | 16 525.000 | 648.815   | 7 956.390 | 15 515.000                             | 7 520.697 | 14 500.399                    | 6 277.250 | 25 130.205 | 23 684.512 | 20 777.649 |
| 2024/2025 | 17 570.000 | 817.474   | 8 101.510 | 16 355.000                             | 7 658.852 | 15 311.642                    | 6 789.850 | 26 488.984 | 24 831.326 | 22 101.492 |

| Year      | Purification |      |         |      | Distribution |       |           |       | Totals       |      |              |       |
|-----------|--------------|------|---------|------|--------------|-------|-----------|-------|--------------|------|--------------|-------|
|           | WH           |      | SL      |      | WH           |       | SL        |       | Purification |      | Distribution |       |
|           | MI/a         | %    | MI/a    | %    | MI/a         | %     | MI/a      | %     | MI/a         | %    | MI/a         | %     |
| 2015/2016 | 1 274.646    | 6.30 | 422.936 | 6.27 | 1 800.977    | 9.22  | 333.832   | 5.28  | 1 697.582    | 6.16 | 2 134.809    | 8.25  |
| 2016/2017 | 755.825      | 4.46 | 328.958 | 5.69 | 271.600      | 1.59  | 332.936   | 6.10  | 1 084.783    | 4.58 | 604.536      | 2.68  |
| 2017/2018 | 231.207      | 1.91 | 74.814  | 1.75 | 339.075      | 2.62  | 425.084   | 10.10 | 306.021      | 1.75 | 764.159      | 4.45  |
| 2018/2019 | 306.967      | 2.43 | 95.638  | 1.97 | 322.170      | 2.53  | 385.952   | 8.09  | 402.605      | 2.25 | 708.122      | 4.05  |
| 2019/2020 | 647.111      | 4.93 | 136.237 | 2.69 | 73.493       | 0.58  | 296.605   | 6.03  | 783.348      | 4.28 | 370.098      | 2.11  |
| 2020/2021 | 384.000      | 2.97 | 133.338 | 2.27 | -88.152      | -0.70 | 542.259   | 9.46  | 517.338      | 2.73 | 454.107      | 2.46  |
| 2021/2022 | 786.000      | 5.40 | 274.091 | 4.21 | 1 285.577    | 9.18  | 428.268   | 6.86  | 1 060.091    | 4.98 | 1 713.845    | 8.47  |
| 2022/2023 | 780.000      | 5.04 | 204.602 | 2.97 | 1 194.479    | 7.91  | 994.915   | 14.89 | 984.602      | 4.33 | 2 189.394    | 10.05 |
| 2023/2024 | 1 010.000    | 6.11 | 435.693 | 5.48 | 1 663.416    | 10.29 | 1 243.447 | 16.53 | 1 445.693    | 5.75 | 2 906.863    | 12.27 |
| 2024/2025 | 1 215.000    | 6.92 | 442.658 | 5.46 | 1 860.832    | 10.84 | 869.002   | 11.35 | 1 657.658    | 6.26 | 2 729.834    | 10.99 |

The treatment losses at both the Withoogte WTW and the Swartland WTW were less than 6.92% for the last ten financial years, which is excellent. The bulk water distribution losses for the last ten financial years for the Withoogte system were between 0% and 10.84% and for the Swartland system it were between 6% and 16.53%. The treatment losses for the two systems combined were less than 6.26% for the last ten financial years, which is excellent. The bulk distribution losses for the two systems combined increased from below 4.5% over the financial years 2016/2017 to 2020/2021 to 10.05%, 12.27% and 10.99% for the last three financial years respectively.

Detail IWA Water Balances are available for each of the water distribution systems (towns) in Swartland Municipality's Management Area. The graph below gives an overview of the annual System Input volume for all the towns in Swartland Municipality's Management Area.

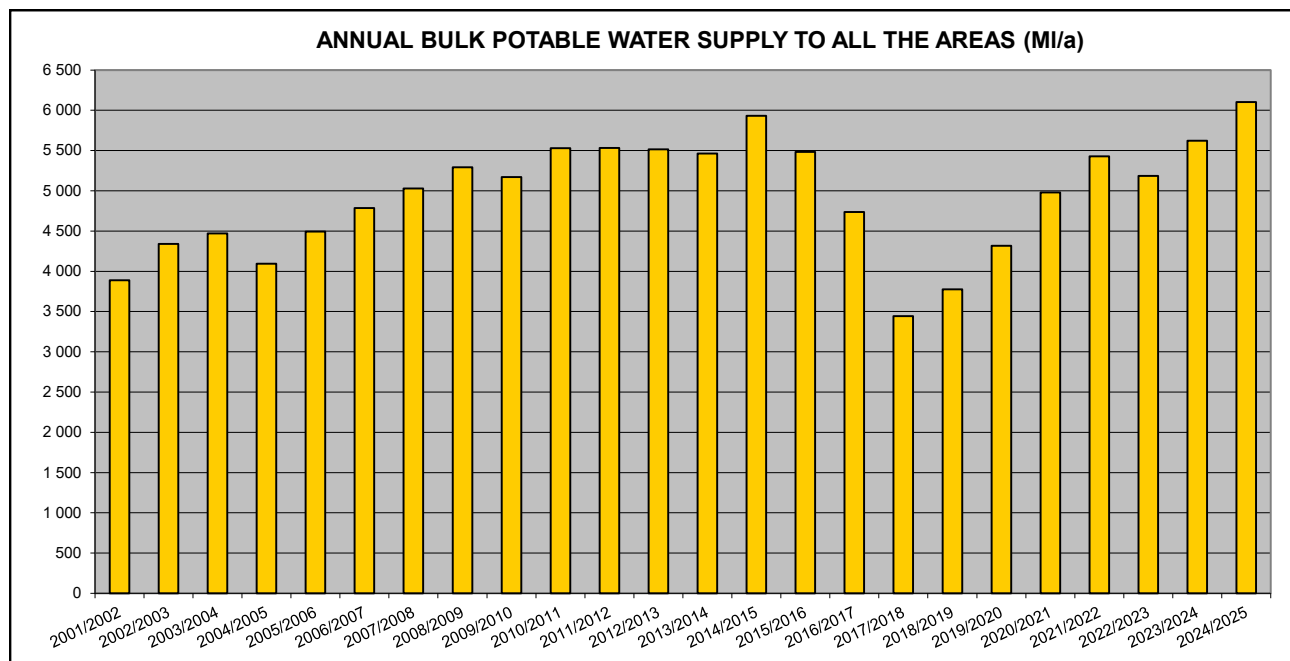


Figure C.1.1: Swartland Municipality's annual bulk potable water supply (System Input Volume) for all the systems

The graph below gives an overview of the annual bulk potable water supply volumes (System Input Volumes) for the various water distribution systems in Swartland Municipality's Management Area.

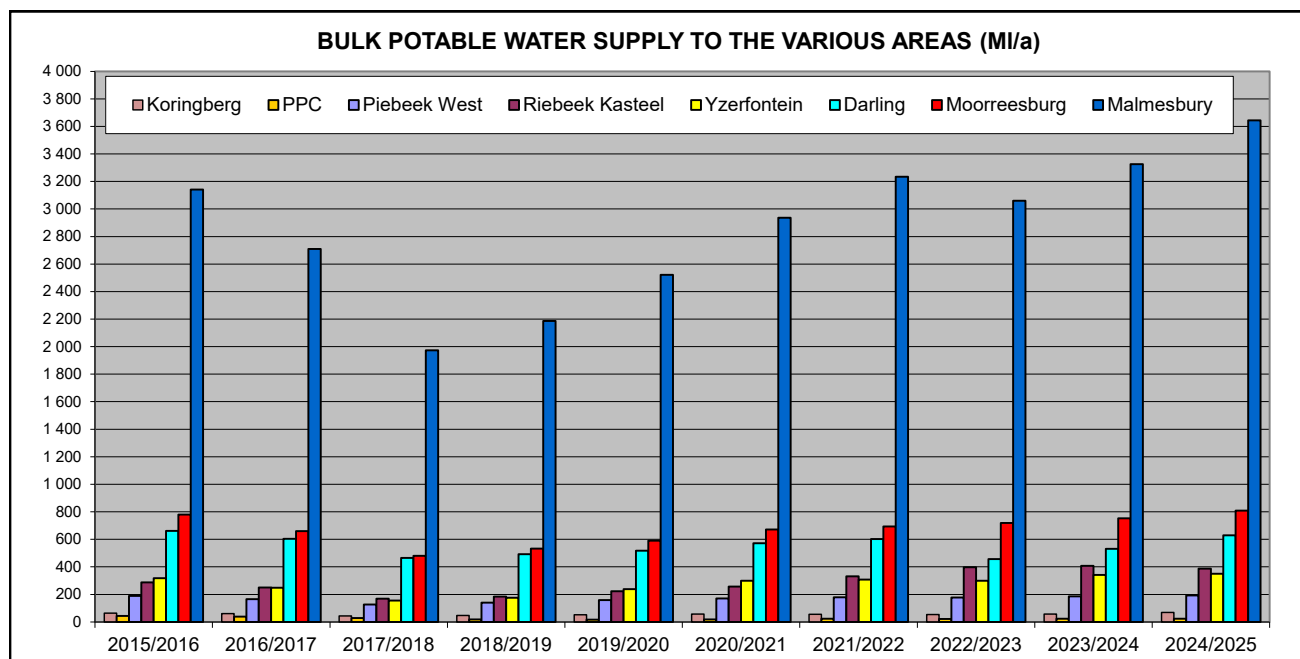


Figure C.1.2: Annual bulk potable water supply volumes (System Input Volumes) for the various water distribution systems.

The severe impact of the 2015 to 2017 drought on the total water requirements of the various towns can be noted from the previous two graphs and the table below. The total system input volume for all the towns came down from 15.020 MI/d in 2015/2016 to 9.430 MI/d in 2017/2018, with a steady recovery over the last eight financial years. A significant part of this effort related to the Municipality's WC/WDM initiatives to reduce the overall water requirements and to reduce the NRW and Water Losses for the various systems.

### Quantity of water provided by the WSA

The table below gives a summary of the annual bulk potable water supply volumes to the various towns within Swartland Municipality's Management Area.

| Distribution System | Source                                      | 24/25            | Record: Prior (MI/a) |                  |                  |                  |                  |
|---------------------|---------------------------------------------|------------------|----------------------|------------------|------------------|------------------|------------------|
|                     |                                             |                  | 23/24                | 22/23            | 21/22            | 20/21            | 19/20            |
| Koringberg          | Misverstand Scheme                          | 68.802           | 56.505               | 54.168           | 55.417           | 56.412           | 51.908           |
| Ongegund            | Voëlvele Scheme                             | 22.419           | 23.534               | 21.200           | 24.013           | 17.662           | 17.033           |
| Riebeek Wes         | Voëlvele Scheme                             | 191.771          | 185.545              | 176.547          | 179.456          | 171.006          | 157.908          |
| Riebeek Kasteel     | Voëlvele Scheme                             | 387.878          | 407.288              | 397.478          | 330.992          | 256.218          | 223.405          |
| Yzerfontein         | Voëlvele Scheme                             | 350.690          | 340.644              | 299.729          | 308.290          | 299.537          | 238.116          |
| Darling             | Voëlvele Scheme                             | 628.500          | 531.035              | 456.832          | 602.718          | 570.859          | 518.097          |
| Moorreesburg        | Misverstand Scheme                          | 808.980          | 752.853              | 718.573          | 692.967          | 671.591          | 590.106          |
| Malmesbury          | Voëlvele Scheme, Paardenberg dam, Boreholes | 3 642.956        | 3 324.756            | 3 059.176        | 3 233.662        | 2 936.354        | 2 520.750        |
| <b>Total</b>        |                                             | <b>6 101.996</b> | <b>5 622.160</b>     | <b>5 183.703</b> | <b>5 427.515</b> | <b>4 979.639</b> | <b>4 317.323</b> |

The graph below gives an overview of the percentage distribution of the system input volume for the 2024/2025 financial year for the different water distribution systems.

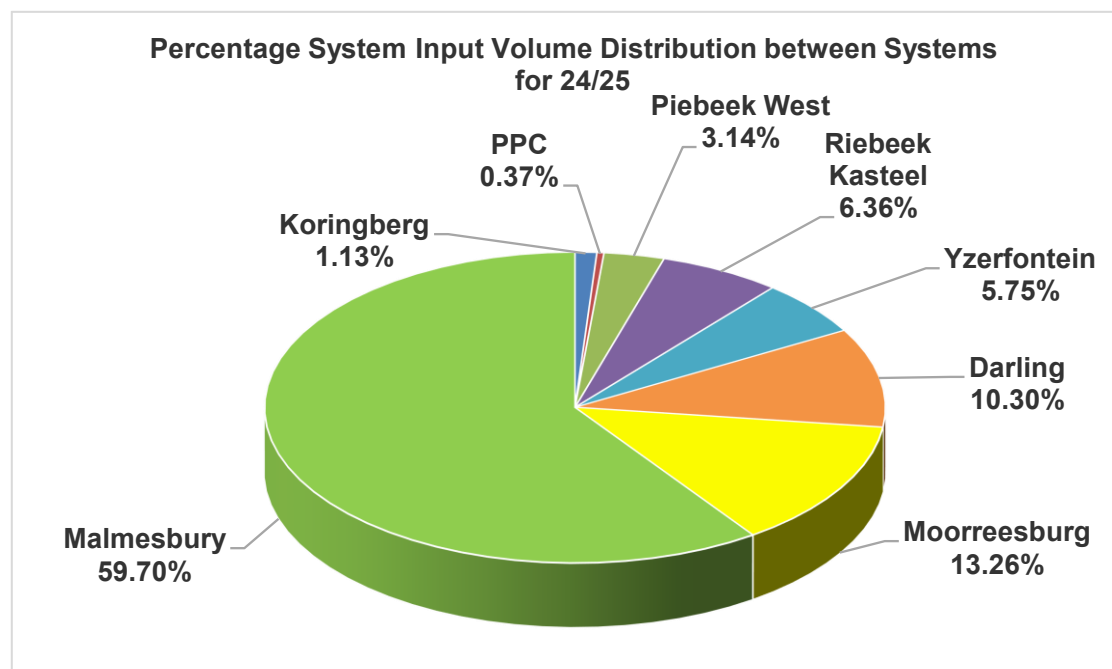


Figure C.1.3: Percentage distribution of the system input volumes for the 2024/2025 financial year

Graphs of the water usage per sector for the various water distribution systems within Swartland Municipality's Management Area are included as part of the IWA water balance models included in Annexure A.

The table below gives an overview of the quantity of water services provided / water balance for all the water distribution systems in Swartland Municipality's Management Area.

| Table C.1.4: Quantity of Water Services Provided / Water Balance |                    |                                                           |                          |                  |                  |              |              |              |
|------------------------------------------------------------------|--------------------|-----------------------------------------------------------|--------------------------|------------------|------------------|--------------|--------------|--------------|
| WSDP Ref. #                                                      | Regulations Ref. # | Description                                               | m <sup>3</sup> per annum |                  |                  | MI/d         |              |              |
|                                                                  |                    |                                                           | Year 0                   | Year - 1         | Year - 2         | Year 0       | Year - 1     | Year - 2     |
|                                                                  |                    |                                                           | FY2024/25                | FY2023/24        | FY2022/23        | FY2024/25    | FY2023/24    | FY2022/23    |
|                                                                  |                    | <b>RAW WATER</b>                                          |                          |                  |                  |              |              |              |
| 7.2.1                                                            |                    | Surface water purchased                                   | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.1 / 7.2.2                                                      |                    | Surface water abstracted                                  | 250                      | 443              | 242              | 0.00         | 0.00         | 0.00         |
| 7.1 / 7.2.3                                                      |                    | Ground water abstracted                                   | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.14                                                           |                    | Effluent recycled                                         | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.4                                                            |                    | less Raw water supplied to others                         | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.5                                                            |                    | <b>Sub-Total: Raw Water supplied</b>                      | <b>250</b>               | <b>443</b>       | <b>242</b>       | <b>0.00</b>  | <b>0.00</b>  | <b>0.00</b>  |
|                                                                  | 10.2 (g) (i)       | <b>BULK WATER SUPPLY</b>                                  |                          |                  |                  |              |              |              |
| 7.2.6                                                            |                    | Volume of water treated                                   | 250                      | 443              | 242              | 0.00         | 0.00         | 0.00         |
| 7.2.7                                                            | 10.2 (a) (ii)      | Purchased treated water                                   | 6 101 746                | 5 621 717        | 5 183 461        | 16.72        | 15.40        | 14.20        |
| 7.2.7A                                                           |                    | Ground water not treated                                  | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.6A                                                           |                    | less Treated water supplied to others                     | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
|                                                                  |                    | <b>Sub-Total: System Input Volume</b>                     | <b>6 101 996</b>         | <b>5 622 160</b> | <b>5 183 703</b> | <b>16.72</b> | <b>15.40</b> | <b>14.20</b> |
|                                                                  |                    | <b>WATER CONSUMPTION</b>                                  |                          |                  |                  |              |              |              |
| 7.2.8.1                                                          |                    | Billed Metered:                                           | 4 700 915                | 4 452 371        | 4 328 018        | 12.88        | 12.20        | 11.86        |
|                                                                  | 10.2 (a) (i)       | Domestic                                                  | 3 334 965                | 3 239 157        | 3 072 933        | 9.14         | 8.87         | 8.42         |
|                                                                  | 10.2 (a) (i)       | Commercial                                                | 688 966                  | 712 124          | 722 107          | 1.89         | 1.95         | 1.98         |
|                                                                  | 10.2 (a) (i)       | Industrial                                                | 16 495                   | 2 958            | 2 215            |              |              |              |
|                                                                  | 10.2 (a) (i)       | etc.                                                      | 660 489                  | 498 132          | 530 763          | 1.81         | 1.36         | 1.45         |
| 7.2.8.2                                                          |                    | Billed Unmetered                                          | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
|                                                                  | 10.2 (a) (i)       | Domestic                                                  | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
|                                                                  | 10.2 (a) (i)       | Commercial                                                | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
|                                                                  | 10.2 (a) (i)       | Industrial                                                | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
|                                                                  | 10.2 (a) (i)       | etc.                                                      | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.8.3                                                          |                    | Unbilled Metered                                          | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.8.4                                                          |                    | Unbilled Unmetered                                        | 131 544                  | 130 584          | 129 706          | 0.36         | 0.36         | 0.36         |
|                                                                  | 10.2 (g) (i)       | <b>Sub-Total: Authorized consumption</b>                  | <b>4 832 459</b>         | <b>4 582 955</b> | <b>4 457 724</b> | <b>13.24</b> | <b>12.56</b> | <b>12.21</b> |
|                                                                  |                    | <b>WATER LOSSES</b>                                       |                          |                  |                  |              |              |              |
| 7.3.1                                                            |                    | Raw water bulk loss                                       | 0                        | 0                | 0                | 0.00         | 0.00         | 0.00         |
| 7.2.3/7.2.4                                                      |                    | Billing losses                                            | 131 544                  | 130 584          | 129 706          | 0.36         | 0.36         | 0.36         |
| 7.2.5                                                            |                    | Apparent losses                                           | 215 821                  | 176 665          | 123 416          | 0.59         | 0.48         | 0.34         |
| 7.2.5.1                                                          |                    | Illegal connections                                       | 25 391                   | 20 784           | 14 520           | 0.07         | 0.06         | 0.04         |
| 7.2.5.2                                                          |                    | Inaccurate meters                                         | 126 954                  | 103 921          | 72 598           | 0.35         | 0.28         | 0.20         |
| 7.2.5.3                                                          |                    | Data errors                                               | 63 477                   | 51 960           | 36 299           | 0.17         | 0.14         | 0.10         |
| 7.2.6                                                            |                    | Real losses                                               | 1 053 716                | 862 540          | 602 563          | 2.89         | 2.36         | 1.65         |
|                                                                  | 10.2 (g) (ii)      | <b>Sub-Total: Water Losses</b>                            | <b>1 269 537</b>         | <b>1 039 205</b> | <b>725 979</b>   | <b>3.48</b>  | <b>2.85</b>  | <b>1.99</b>  |
|                                                                  |                    | <b>WASTEWATER TREATMENT</b>                               |                          |                  |                  |              |              |              |
| 7.2.9                                                            | 10.2 (a) (iii)     | Total received at WWTW                                    | 3 662 073                | 3 419 191        | 3 526 775        | 10.03        | 9.37         | 9.66         |
| 7.2.11                                                           |                    | Total discharged                                          | 2 838 845                | 2 627 662        | 2 708 871        | 7.78         | 7.20         | 7.42         |
| 7.2.13                                                           |                    | Returned to environment                                   | 1 476 860                | 1 393 948        | 1 446 537        | 4.05         | 3.82         | 3.96         |
| 7.2.14                                                           |                    | Recycled                                                  | 1 361 985                | 1 233 714        | 1 262 334        | 3.73         | 3.38         | 3.46         |
|                                                                  | 10.2 (a) (iv)      | <b>Quantity of water supplied not discharged to WWTWs</b> | <b>1 170 386</b>         | <b>1 163 764</b> | <b>930 949</b>   | <b>3.21</b>  | <b>3.19</b>  | <b>2.55</b>  |

The graph below gives an overview of billed metered consumption per type of consumer for the last three financial years.

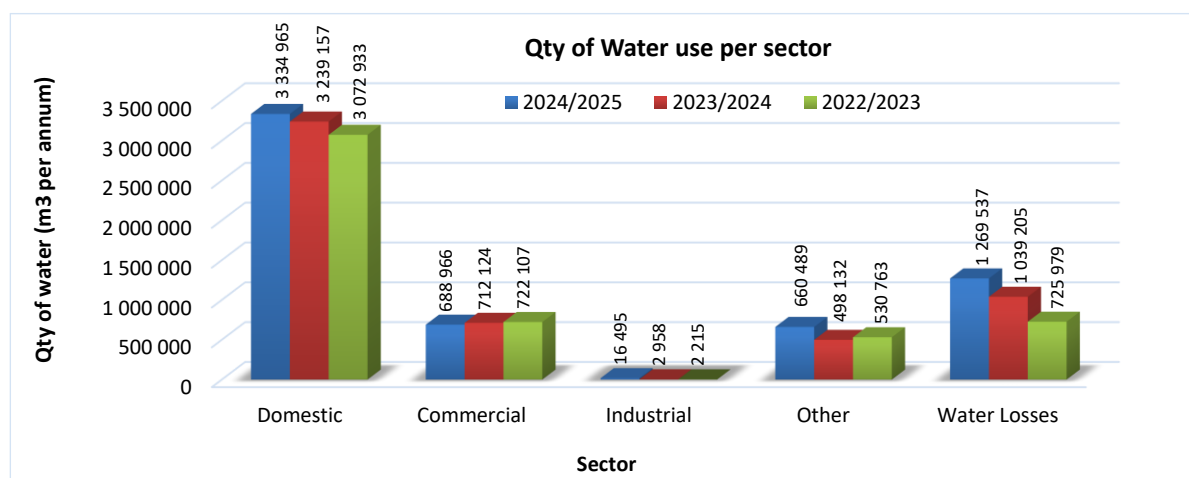


Figure C.1.4: Quantity of water services provided / water balance

The table below gives a summary of the annual billed metered consumption volume per consumer type for the various distribution systems and financial years.

| Town            | Year  | Residential | Business & Industrial | Other  | Farms  | Total   |
|-----------------|-------|-------------|-----------------------|--------|--------|---------|
| Koringberg      | 15/16 | 47.886      | 5.215                 | 2.330  | 0      | 55.431  |
|                 | 16/17 | 44.529      | 5.340                 | 1.396  | 0      | 51.265  |
|                 | 17/18 | 25.758      | 3.051                 | 1.135  | 0      | 29.944  |
|                 | 18/19 | 27.862      | 3.061                 | 0.992  | 0      | 31.915  |
|                 | 19/20 | 31.362      | 2.362                 | 1.208  | 0      | 34.932  |
|                 | 20/21 | 40.579      | 1.216                 | 1.222  | 0      | 43.017  |
|                 | 21/22 | 37.424      | 4.743                 | 1.151  | 0      | 43.318  |
|                 | 22/23 | 39.137      | 5.448                 | 2.246  | 0      | 46.831  |
|                 | 23/24 | 42.513      | 4.287                 | 2.323  | 0      | 49.123  |
| Ongegend        | 24/25 | 47.649      | 6.392                 | 2.747  | 0      | 56.788  |
|                 | 15/16 | 22.268      | 3.091                 | 3.204  | 0      | 28.563  |
|                 | 16/17 | 18.239      | 2.166                 | 1.133  | 0      | 21.538  |
|                 | 17/18 | 9.202       | 0.919                 | 0.836  | 0      | 10.957  |
|                 | 18/19 | 11.453      | 0                     | 0.005  | 0      | 11.458  |
|                 | 19/20 | 12.793      | 0                     | 0.004  | 0      | 12.797  |
|                 | 20/21 | 14.472      | 0.037                 | 0.078  | 0      | 14.587  |
|                 | 21/22 | 14.553      | 0.181                 | 0.065  | 0      | 14.799  |
|                 | 22/23 | 18.545      | 1.386                 | 0.009  | 0      | 19.940  |
| Riebeek Wes     | 23/24 | 16.505      | 2.141                 | 0.066  | 0      | 18.712  |
|                 | 24/25 | 16.033      | 2.120                 | 0.005  | 0      | 18.158  |
|                 | 15/16 | 121.093     | 25.304                | 11.473 | 0      | 157.870 |
|                 | 16/17 | 121.949     | 22.368                | 9.711  | 0      | 154.028 |
|                 | 17/18 | 73.064      | 15.210                | 17.338 | 0      | 105.612 |
|                 | 18/19 | 84.487      | 17.007                | 15.767 | 0      | 117.261 |
|                 | 19/20 | 96.265      | 17.084                | 22.519 | 0      | 135.868 |
|                 | 20/21 | 118.764     | 14.953                | 10.799 | 0      | 144.516 |
|                 | 21/22 | 121.425     | 25.891                | 13.827 | 0      | 161.143 |
| Riebeek Kasteel | 22/23 | 119.248     | 17.959                | 19.539 | 0      | 156.746 |
|                 | 23/24 | 128.061     | 12.439                | 23.992 | 0      | 164.492 |
|                 | 24/25 | 131.004     | 16.238                | 21.408 | 0      | 168.650 |
|                 | 15/16 | 194.956     | 25.221                | 9.514  | 9.894  | 239.585 |
|                 | 16/17 | 165.532     | 22.359                | 8.153  | 11.438 | 207.482 |

| Table C.1.5: Quantity of water used by each user sector (Billed Metered Consumption, Ml/a) |       |             |                       |         |         |           |
|--------------------------------------------------------------------------------------------|-------|-------------|-----------------------|---------|---------|-----------|
| Town                                                                                       | Year  | Residential | Business & Industrial | Other   | Farms   | Total     |
|                                                                                            | 17/18 | 93.786      | 11.801                | 4.228   | 7.066   | 116.881   |
|                                                                                            | 18/19 | 125.625     | 16.629                | 8.325   | 7.490   | 158.069   |
|                                                                                            | 19/20 | 144.016     | 18.085                | 6.845   | 6.697   | 175.643   |
|                                                                                            | 20/21 | 171.842     | 10.802                | 11.934  | 8.850   | 203.428   |
|                                                                                            | 21/22 | 187.583     | 25.133                | 11.147  | 9.042   | 232.905   |
|                                                                                            | 22/23 | 209.616     | 16.065                | 12.364  | 5.928   | 243.973   |
|                                                                                            | 23/24 | 231.279     | 17.128                | 7.328   | 5.153   | 260.887   |
|                                                                                            | 24/25 | 252.900     | 13.262                | 7.677   | 0.914   | 274.753   |
| Yzerfontein                                                                                | 15/16 | 247.560     | 11.503                | 14.738  | 0       | 273.801   |
|                                                                                            | 16/17 | 195.307     | 7.914                 | 12.047  | 0       | 215.268   |
|                                                                                            | 17/18 | 88.626      | 5.087                 | 8.968   | 0       | 102.681   |
|                                                                                            | 18/19 | 142.166     | 5.475                 | 12.285  | 0       | 159.926   |
|                                                                                            | 19/20 | 165.718     | 6.243                 | 19.046  | 0       | 191.007   |
|                                                                                            | 20/21 | 218.279     | 10.784                | 10.273  | 0       | 239.336   |
|                                                                                            | 21/22 | 231.664     | 12.000                | 24.292  | 0       | 267.956   |
|                                                                                            | 22/23 | 236.049     | 14.859                | 24.096  | 0       | 275.004   |
| Darling                                                                                    | 23/24 | 263.838     | 15.288                | -3.844  | 0       | 275.283   |
|                                                                                            | 24/25 | 276.064     | 17.585                | 12.815  | 0       | 306.464   |
|                                                                                            | 15/16 | 353.330     | 144.849               | 50.635  | 0       | 548.814   |
|                                                                                            | 16/17 | 355.139     | 134.866               | 29.218  | 0       | 519.223   |
|                                                                                            | 17/18 | 228.404     | 129.920               | 15.601  | 0       | 373.925   |
|                                                                                            | 18/19 | 254.530     | 96.992                | 12.954  | 0       | 364.476   |
|                                                                                            | 19/20 | 279.913     | 87.055                | 13.051  | 0       | 380.019   |
|                                                                                            | 20/21 | 324.719     | 78.725                | 16.910  | 0       | 420.354   |
| Moorreesburg                                                                               | 21/22 | 327.638     | 103.959               | 20.691  | 0       | 452.288   |
|                                                                                            | 22/23 | 322.101     | 119.771               | 21.943  | 0       | 463.815   |
|                                                                                            | 23/24 | 341.812     | 131.703               | 16.205  | 0       | 489.721   |
|                                                                                            | 24/25 | 354.853     | 91.729                | 23.024  | 0       | 469.606   |
|                                                                                            | 15/16 | 502.598     | 123.776               | 24.287  | 8.207   | 658.868   |
|                                                                                            | 16/17 | 454.057     | 91.142                | 17.923  | 6.427   | 569.549   |
|                                                                                            | 17/18 | 293.675     | 61.312                | 11.675  | 3.217   | 369.879   |
|                                                                                            | 18/19 | 330.550     | 63.275                | 25.092  | 3.376   | 422.293   |
| Malmesbury                                                                                 | 19/20 | 369.022     | 58.184                | 40.022  | 3.577   | 470.805   |
|                                                                                            | 20/21 | 416.587     | 67.556                | 45.188  | 5.784   | 535.115   |
|                                                                                            | 21/22 | 415.964     | 74.323                | 26.930  | 6.032   | 523.249   |
|                                                                                            | 22/23 | 406.312     | 75.005                | 34.653  | 5.919   | 521.889   |
|                                                                                            | 23/24 | 417.541     | 78.750                | 34.212  | 7.139   | 537.642   |
|                                                                                            | 24/25 | 434.512     | 83.599                | 41.470  | 6.642   | 566.223   |
|                                                                                            | 15/16 | 1 648.433   | 402.766               | 368.562 | 43.247  | 2 463.008 |
|                                                                                            | 16/17 | 1 567.750   | 430.508               | 315.334 | 30.380  | 2 343.972 |
| TOTAL                                                                                      | 17/18 | 1 062.301   | 334.187               | 267.066 | 19.559  | 1 683.113 |
|                                                                                            | 18/19 | 1 241.947   | 291.858               | 253.886 | 90.675  | 1 878.366 |
|                                                                                            | 19/20 | 1 387.791   | 356.109               | 285.499 | 112.051 | 2 141.450 |
|                                                                                            | 20/21 | 1 537.917   | 398.212               | 293.799 | 110.631 | 2 340.559 |
|                                                                                            | 21/22 | 1 651.568   | 432.876               | 314.160 | 79.562  | 2 478.166 |
|                                                                                            | 22/23 | 1 721.925   | 473.829               | 327.167 | 76.899  | 2 599.820 |
|                                                                                            | 23/24 | 1 797.609   | 453.345               | 318.706 | 86.852  | 2 656.511 |
|                                                                                            | 24/25 | 1 821.950   | 474.536               | 449.609 | 94.178  | 2 840.273 |
|                                                                                            | 15/16 | 3 138.124   | 741.725               | 484.743 | 61.348  | 4 425.940 |
|                                                                                            | 16/17 | 2 922.502   | 716.663               | 394.915 | 48.245  | 4 082.325 |
|                                                                                            | 17/18 | 1 874.816   | 561.487               | 326.847 | 29.842  | 2 792.992 |
|                                                                                            | 18/19 | 2 218.620   | 494.297               | 329.306 | 101.541 | 3 143.764 |
|                                                                                            | 19/20 | 2 486.880   | 545.122               | 388.194 | 122.325 | 3 542.521 |
|                                                                                            | 20/21 | 2 843.159   | 582.285               | 390.203 | 125.265 | 3 940.912 |
|                                                                                            | 21/22 | 2 987.819   | 679.106               | 412.263 | 94.636  | 4 173.824 |
|                                                                                            | 22/23 | 3 072.933   | 724.322               | 442.017 | 88.746  | 4 328.018 |
|                                                                                            | 23/24 | 3 239.157   | 715.082               | 398.988 | 99.144  | 4 452.371 |
|                                                                                            | 24/25 | 3 334.965   | 705.461               | 558.755 | 101.734 | 4 700.915 |



### Quantity of effluent received at the WWTWs (Ml/a):

Recorded flows are available for the Malmesbury-, Moorreesburg-, Darling- and Riebeek Valley WWTWs. The influent received at the other WWTWs is not metered and was therefore calculated as a percentage of the billed metered consumption. The monthly flows and rainfall at the various WWTWs are also summarised in Annexure A. The table below gives an overview of the metered and estimated volume of effluent received at the various WWTWs for the last six financial years.

| WWTWs                   | % of Historic Water Demands | 24/25            | Record: Prior (Ml/a) |                  |                  |                  |                  |
|-------------------------|-----------------------------|------------------|----------------------|------------------|------------------|------------------|------------------|
|                         |                             |                  | 23/24                | 22/23            | 21/22            | 20/21            | 19/20            |
| Malmesbury              | N/A (Metered)               | 2 047.373        | 1 967.200            | 2 119.441        | 2 028.272        | 1 932.526        | 1 764.088        |
| Moorreesburg            | N/A (Metered)               | 460.467          | 480.578              | 450.414          | 399.445          | 400.243          | 351.586          |
| Darling                 | N/A (Metered)               | 539.355          | 454.765              | 477.148          | 460.101          | 452.898          | 401.561          |
| Koringberg              | 70%                         | 39.751           | 34.386               | 32.782           | 30.323           | 30.112           | 24.452           |
| Kalbaskraal             | 40%                         | 35.540           | 31.950               | 30.489           | 27.971           | 27.759           | 22.176           |
| Chatsworth / Riverlands | 40%                         | 73.008           | 98.364               | 124.358          | 89.498           | 92.656           | 63.458           |
| Riebeek Valley          | N/A (Metered)               | 466.579          | 351.948              | 292.143          | 301.847          | 307.636          | 273.968          |
| <b>Total</b>            |                             | <b>3 662.073</b> | <b>3 419.191</b>     | <b>3 526.775</b> | <b>3 337.457</b> | <b>3 243.830</b> | <b>2 901.289</b> |

### Quantity of treated effluent returned to the water resource system:

The quantity of effluent treated by industrial consumers on their own premises and re-used by them is not known at this stage. All effluent discharged into the Municipal sewer system is however treated at the existing WWTWs. The current volume of treated effluent re-use from the various WWTWs and the current effluent re-use practices are as indicated in the table below.

| Table C.1.7: Volume of effluent re-use and current re-use practices at the various WWTWs |                            |           |           |           |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------|----------------------------|-----------|-----------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WWTW                                                                                     | Re-use of treated effluent |           |           |           |                                                                                                                                                                                                                                                     | Current effluent re-use practices                                                                                                                                                                                                        |
|                                                                                          | Billed Volume (Ml)         |           |           |           | Consumers                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
|                                                                                          | 24/25                      | 23/24     | 22/23     | 21/22     |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                          |
| Malmesbury                                                                               | 1 249.669                  | 1 125.206 | 1 161.959 | 1 123.616 | Rooiheuvel JV, Primary School Swartland, High School Swartland, Wesbank Sportsfields, Golf Course, Landbougenootskap, Ilinge Lethu Sportgrounds, St Thomas Primary, Alkana Childcare, Bowling Club, Alfa Street Sport Centre, Building Contractors. | Building Contractors, Rooiheuwels Irrigation Scheme, Irrigation of rugby and cricket fields at schools and golf course. Treated effluent not re-used is returned to the Diep River. In excess of 80% of the treated effluent is re-used. |
| Moorreesburg                                                                             | 71.058                     | 63.728    | 62.897    | 43.667    | WWTW, Gene Louw, Golf Course                                                                                                                                                                                                                        | Irrigation of rugby and cricket fields and golf course. During the summer months all treated effluent is re-used. Treated effluent not re-used is returned to the Nogo River.                                                            |
| Darling                                                                                  | 30.706                     | 33.988    | 17.343    | 16.232    | Golf Course, Gabriel Faroa Sport                                                                                                                                                                                                                    | Irrigation of rugby fields and golf course. During the summer months all treated effluent is re-used. Treated effluent not re-used is returned to the Groen River.                                                                       |
| Riebeek Valley                                                                           | 10.552                     | 10.792    | 20.135    | 14.474    | Farmers                                                                                                                                                                                                                                             | Re-use for agricultural purposes (Tender was awarded for 20-year period).                                                                                                                                                                |
| Koringberg                                                                               | -                          | -         | -         | -         | -                                                                                                                                                                                                                                                   | No re-use practices. Treated effluent returned into a local stream (Brak River)                                                                                                                                                          |
| Kalbaskraal                                                                              | -                          | -         | -         | -         | -                                                                                                                                                                                                                                                   | No re-use practices. Evaporate                                                                                                                                                                                                           |
| Chatsworth / Riverlands                                                                  | -                          | -         | -         | -         | -                                                                                                                                                                                                                                                   | No re-use practices. Evaporate                                                                                                                                                                                                           |
| Total                                                                                    | 1 361.985                  | 1 233.714 | 1 262.334 | 1 197.989 |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                          |

## C.2. Water Services Delivery Profile

The current water and sanitation service levels provided by Swartland Municipality to their consumers are included in the Municipality's Water Services By-law. A Water and Sanitation Service Level Policy however needs to be drafted for Swartland Municipality, which takes the following into account.

- National Sanitation Policy, 2016;
- Water and Sanitation Services on Privately Owned Land Policy (November 2023); and
- Revised Compulsory National Water and Sanitation Services Standards in terms of Section 9(1) of the Water Services Act, Act No. 108 of 1997. Government Gazette No.52814 of 6 June 2025.

### C.2.1. User Connection Profile

The total number of user connections in each user sector, for the consumers provided with water services by Swartland Municipality, is as follows (June 2025).

| Table C.2.1.1: User Connection Profile for Water Services |                                          |                     |             |                      |             |                      |             |                                           |
|-----------------------------------------------------------|------------------------------------------|---------------------|-------------|----------------------|-------------|----------------------|-------------|-------------------------------------------|
| WSDP<br>Ref. #                                            | Category of users                        | Water Services      |             |                      |             |                      |             |                                           |
|                                                           |                                          | Year 0<br>FY2024/25 |             | Year -1<br>FY2023/24 |             | Year -2<br>FY2022/23 |             | New<br>Connections<br>Year 0<br>FY2024/25 |
|                                                           |                                          | Nr                  | %           | Nr                   | %           | Nr                   | %           | Nr                                        |
|                                                           | <b>RESIDENTIAL (DOMESTIC)</b>            |                     |             |                      |             |                      |             |                                           |
| 3.3                                                       | Metered: Uncontrolled                    | 22 075              | 93%         | 21 873               | 93%         | 21 596               | 93%         | 202                                       |
| 3.3                                                       | Metered: Controlled                      | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | Unmetered (Flat rate)                    | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | Communal water supply                    | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Residential</b>            | <b>22 075</b>       | <b>93%</b>  | <b>21 873</b>        | <b>93%</b>  | <b>21 596</b>        | <b>93%</b>  | <b>202</b>                                |
|                                                           | <b>EDUCATION</b>                         |                     |             |                      |             |                      |             |                                           |
| 3.3                                                       | Schools                                  | 32                  | 0%          | 30                   | 0%          | 30                   | 0%          | 2                                         |
|                                                           | Tertiary education facilities            | 1                   | 0%          | 1                    | 0%          | 1                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Education</b>              | <b>33</b>           | <b>0%</b>   | <b>31</b>            | <b>0%</b>   | <b>31</b>            | <b>0%</b>   | <b>2</b>                                  |
|                                                           | <b>HEALTH</b>                            |                     |             |                      |             |                      |             |                                           |
| 3.3                                                       | Clinics                                  | 4                   | 0%          | 4                    | 0%          | 4                    | 0%          | 0                                         |
| 3.3                                                       | Hospitals                                | 2                   | 0%          | 2                    | 0%          | 2                    | 0%          | 0                                         |
| 3.3                                                       | Health Centres                           | 2                   | 0%          | 2                    | 0%          | 2                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Health</b>                 | <b>8</b>            | <b>0%</b>   | <b>8</b>             | <b>0%</b>   | <b>8</b>             | <b>0%</b>   | <b>0</b>                                  |
|                                                           | <b>INSTITUTIONAL</b>                     |                     |             |                      |             |                      |             |                                           |
|                                                           | Public Institutions (Est)                | 25                  | 0%          | 25                   | 0%          | 25                   | 0%          | 0                                         |
| 3.3                                                       | Magistrate Offices                       | 2                   | 0%          | 2                    | 0%          | 2                    | 0%          | 0                                         |
| 3.3                                                       | Police Stations                          | 5                   | 0%          | 5                    | 0%          | 5                    | 0%          | 0                                         |
| 3.3                                                       | Prisons                                  | 1                   | 0%          | 1                    | 0%          | 1                    | 0%          | 0                                         |
|                                                           | etc                                      | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Institutional</b>          | <b>33</b>           | <b>0%</b>   | <b>33</b>            | <b>0%</b>   | <b>33</b>            | <b>0%</b>   | <b>0</b>                                  |
|                                                           | <b>INDUSTRIAL</b>                        |                     |             |                      |             |                      |             |                                           |
| 3.3                                                       | Dry industries (Incl. with Businesses)   | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
| 3.3                                                       | Wet industries                           | 9                   | 0%          | 9                    | 0%          | 9                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Industrial</b>             | <b>9</b>            | <b>0%</b>   | <b>9</b>             | <b>0%</b>   | <b>9</b>             | <b>0%</b>   | <b>0</b>                                  |
|                                                           | <b>COMMERCIAL</b>                        |                     |             |                      |             |                      |             |                                           |
| 3.3                                                       | Businesses                               | 885                 | 4%          | 859                  | 4%          | 845                  | 4%          | 26                                        |
| 3.3                                                       | Office Buildings (Incl. with Businesses) | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Commercial</b>             | <b>885</b>          | <b>4%</b>   | <b>859</b>           | <b>4%</b>   | <b>845</b>           | <b>4%</b>   | <b>26</b>                                 |
|                                                           | <b>MINING</b>                            |                     |             |                      |             |                      |             |                                           |
|                                                           | Mining                                   | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | <b>Sub-Total: Commercial</b>             | <b>0</b>            | <b>0%</b>   | <b>0</b>             | <b>0%</b>   | <b>0</b>             | <b>0%</b>   | <b>0</b>                                  |
|                                                           | <b>OTHER</b>                             |                     |             |                      |             |                      |             |                                           |
|                                                           | Agriculture: raw water                   | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          | 0                                         |
|                                                           | etc                                      | 638                 | 3%          | 636                  | 3%          | 646                  | 3%          | 2                                         |
|                                                           | <b>Sub-Total: Other</b>                  | <b>638</b>          | <b>3%</b>   | <b>636</b>           | <b>3%</b>   | <b>646</b>           | <b>3%</b>   | <b>2</b>                                  |
|                                                           | <b>TOTAL</b>                             | <b>23 681</b>       | <b>100%</b> | <b>23 449</b>        | <b>100%</b> | <b>23 168</b>        | <b>100%</b> | <b>232</b>                                |

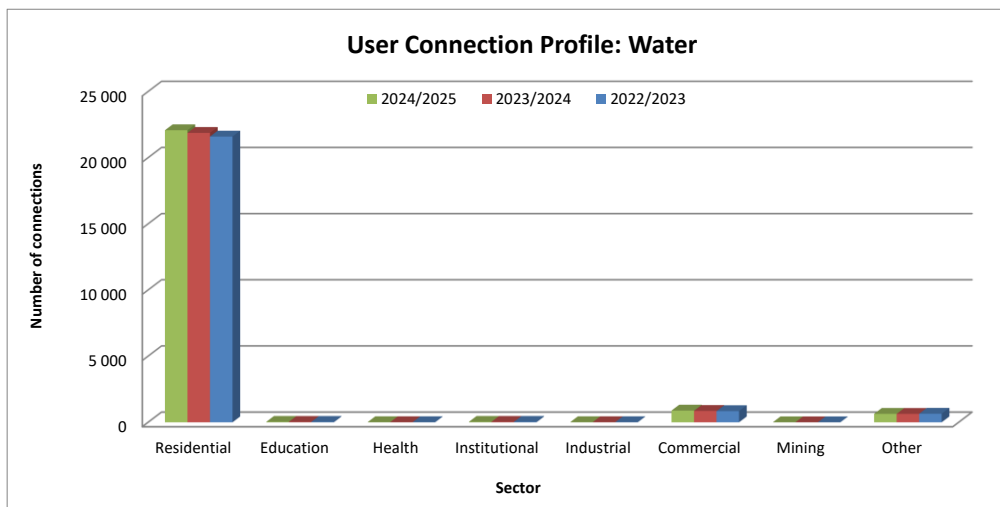


Figure C.2.1.1: User connection profile for water

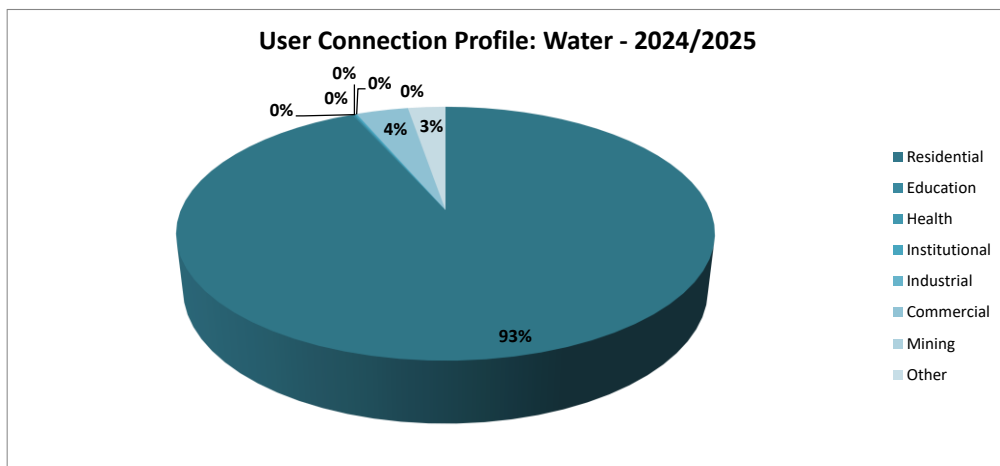


Figure C.2.1.2: User connection distribution for water – Year 2024/2025

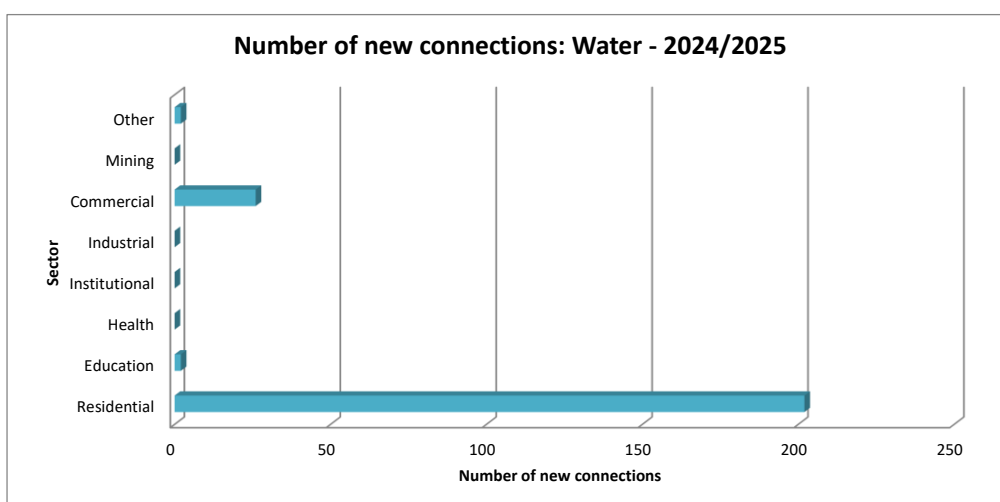


Figure C.2.1.3: Number of new water connections provided during 2024/2025

**Table C.2.1.2: User Connection Profile for Wastewater Services**

| WSDP<br>Ref. # | Category of users                        | Wastewater Services |             |                      |             |                      |             |                                           |            |
|----------------|------------------------------------------|---------------------|-------------|----------------------|-------------|----------------------|-------------|-------------------------------------------|------------|
|                |                                          | Year 0<br>FY2024/25 |             | Year -1<br>FY2023/24 |             | Year -2<br>FY2022/23 |             | New<br>Connections<br>Year 0<br>FY2024/25 |            |
|                |                                          | Nr                  | %           | Nr                   | %           | Nr                   | %           | Nr                                        |            |
|                | <b>RESIDENTIAL (DOMESTIC)</b>            |                     |             |                      |             |                      |             |                                           |            |
| 3.3            | Metered: Uncontrolled                    | 22 075              | 93%         | 21 873               | 93%         | 21 596               | 93%         |                                           | 202        |
| 3.3            | Metered: Controlled                      | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | Unmetered (Flat rate)                    | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | Communal water supply                    | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Residential</b>            | <b>22 075</b>       | <b>93%</b>  | <b>21 873</b>        | <b>93%</b>  | <b>21 596</b>        | <b>93%</b>  |                                           | <b>202</b> |
|                | <b>EDUCATION</b>                         |                     |             |                      |             |                      |             |                                           |            |
| 3.3            | Schools                                  | 32                  | 0%          | 30                   | 0%          | 30                   | 0%          |                                           | 2          |
|                | Tertiary education facilities            | 1                   | 0%          | 1                    | 0%          | 1                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Education</b>              | <b>33</b>           | <b>0%</b>   | <b>31</b>            | <b>0%</b>   | <b>31</b>            | <b>0%</b>   |                                           | <b>2</b>   |
|                | <b>HEALTH</b>                            |                     |             |                      |             |                      |             |                                           |            |
| 3.3            | Clinics                                  | 4                   | 0%          | 4                    | 0%          | 4                    | 0%          |                                           | 0          |
| 3.3            | Hospitals                                | 2                   | 0%          | 2                    | 0%          | 2                    | 0%          |                                           | 0          |
| 3.3            | Health Centres                           | 2                   | 0%          | 2                    | 0%          | 2                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Health</b>                 | <b>8</b>            | <b>0%</b>   | <b>8</b>             | <b>0%</b>   | <b>8</b>             | <b>0%</b>   |                                           | <b>0</b>   |
|                | <b>INSTITUTIONAL</b>                     |                     |             |                      |             |                      |             |                                           |            |
|                | Public Institutions (Est)                | 25                  | 0%          | 25                   | 0%          | 25                   | 0%          |                                           | 0          |
| 3.3            | Magistrate Offices                       | 2                   | 0%          | 2                    | 0%          | 2                    | 0%          |                                           | 0          |
| 3.3            | Police Stations                          | 5                   | 0%          | 5                    | 0%          | 5                    | 0%          |                                           | 0          |
| 3.3            | Prisons                                  | 1                   | 0%          | 1                    | 0%          | 1                    | 0%          |                                           | 0          |
|                | etc                                      | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Institutional</b>          | <b>33</b>           | <b>0%</b>   | <b>33</b>            | <b>0%</b>   | <b>33</b>            | <b>0%</b>   |                                           | <b>0</b>   |
|                | <b>INDUSTRIAL</b>                        |                     |             |                      |             |                      |             |                                           |            |
| 3.3            | Dry industries (Incl. with Businesses)   | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
| 3.3            | Wet industries                           | 9                   | 0%          | 9                    | 0%          | 9                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Industrial</b>             | <b>9</b>            | <b>0%</b>   | <b>9</b>             | <b>0%</b>   | <b>9</b>             | <b>0%</b>   |                                           | <b>0</b>   |
|                | <b>COMMERCIAL</b>                        |                     |             |                      |             |                      |             |                                           |            |
| 3.3            | Businesses                               | 885                 | 4%          | 859                  | 4%          | 845                  | 4%          |                                           | 26         |
| 3.3            | Office Buildings (Incl. with Businesses) | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Commercial</b>             | <b>885</b>          | <b>4%</b>   | <b>859</b>           | <b>4%</b>   | <b>845</b>           | <b>4%</b>   |                                           | <b>26</b>  |
|                | <b>MINING</b>                            |                     |             |                      |             |                      |             |                                           |            |
|                | Mining                                   | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | <b>Sub-Total: Commercial</b>             | <b>0</b>            | <b>0%</b>   | <b>0</b>             | <b>0%</b>   | <b>0</b>             | <b>0%</b>   |                                           | <b>0</b>   |
|                | <b>OTHER</b>                             |                     |             |                      |             |                      |             |                                           |            |
|                | Agriculture: raw water                   | 0                   | 0%          | 0                    | 0%          | 0                    | 0%          |                                           | 0          |
|                | etc                                      | 638                 | 3%          | 636                  | 3%          | 646                  | 3%          |                                           | 2          |
|                | <b>Sub-Total: Other</b>                  | <b>638</b>          | <b>3%</b>   | <b>636</b>           | <b>3%</b>   | <b>646</b>           | <b>3%</b>   |                                           | <b>2</b>   |
|                | <b>TOTAL</b>                             | <b>23 681</b>       | <b>100%</b> | <b>23 449</b>        | <b>100%</b> | <b>23 168</b>        | <b>100%</b> |                                           | <b>232</b> |

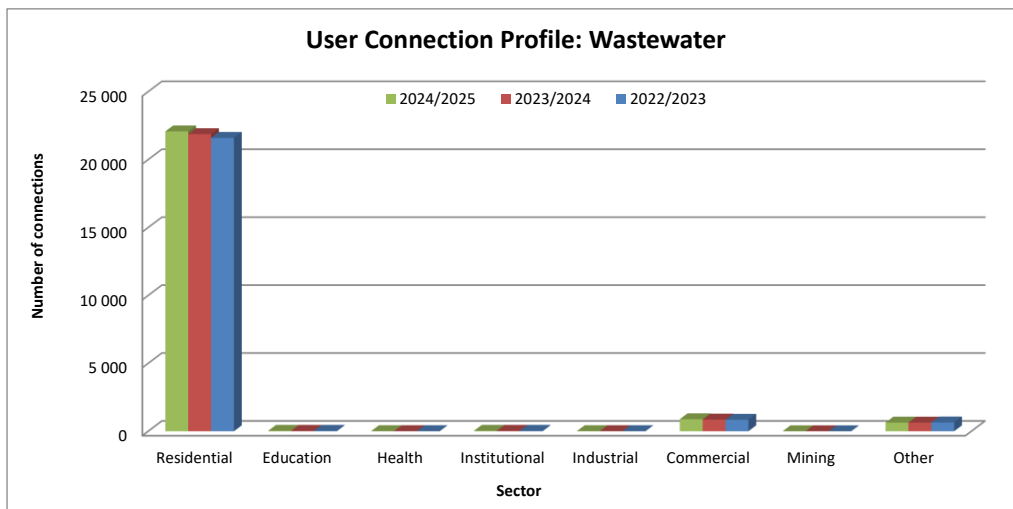


Figure C.2.1.4: User connection profile for wastewater

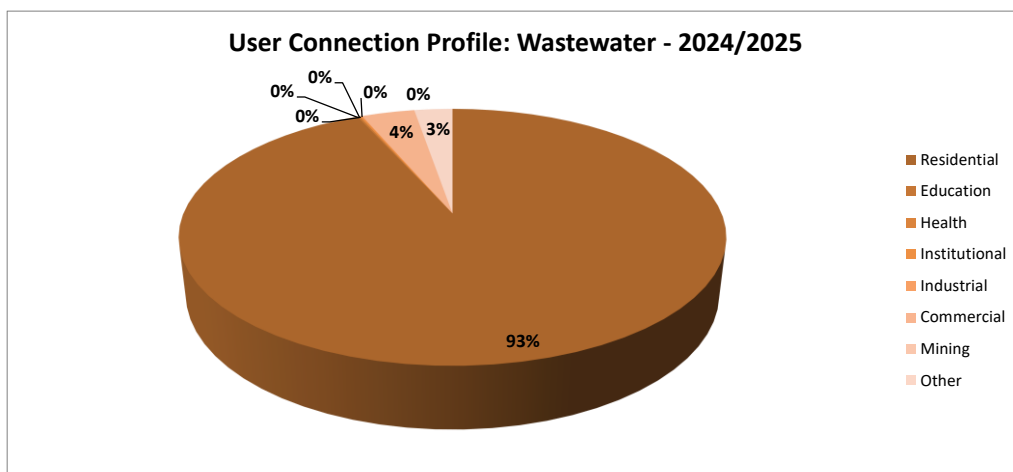


Figure C.2.1.5: User connection distribution for wastewater – Year 2024/2025

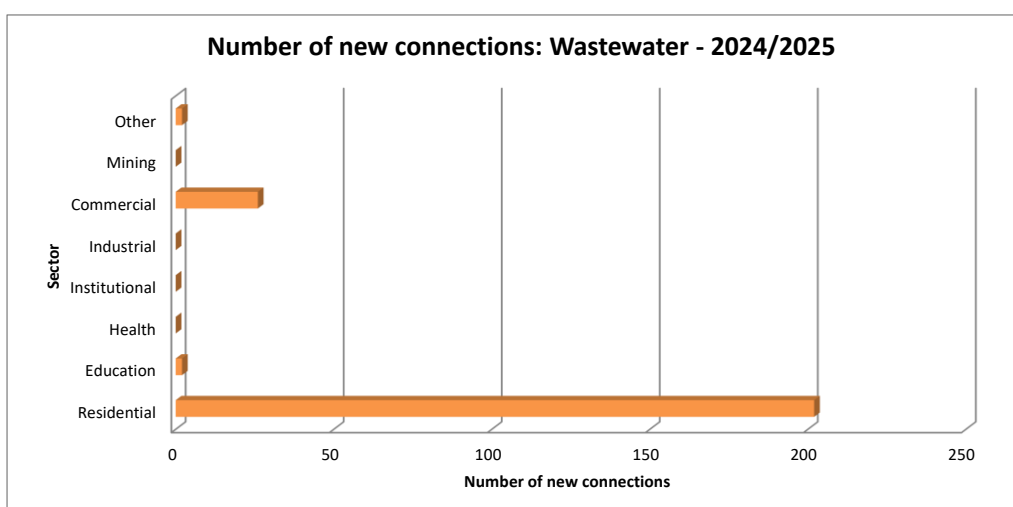


Figure C.2.1.6: Number of new wastewater connections provided during 2024/2025

The number of Billed Metered Consumers in each user sector, for the various water distribution systems in Swartland Municipality's Management Area, are summarised in the table below.

| Distribution System | 24/25         |            |            | 23/24         |            |            | 22/23         |            |            | 21/22         |            |            |
|---------------------|---------------|------------|------------|---------------|------------|------------|---------------|------------|------------|---------------|------------|------------|
|                     | Res           | Bus        | Other      | Res           | Bus        | Other      | Res           | Bus        | Other      | Res           | Bus        | Other      |
| Koringberg          | 356           | 10         | 8          | 339           | 10         | 8          | 344           | 11         | 8          | 335           | 11         | 8          |
| Ongegund            | 90            | 2          | 12         | 89            | 2          | 16         | 88            | 2          | 19         | 88            | 2          | 19         |
| Riebeek Wes         | 979           | 51         | 33         | 977           | 50         | 31         | 975           | 50         | 33         | 963           | 51         | 34         |
| Riebeek Kasteel     | 1 610         | 39         | 31         | 1 598         | 38         | 28         | 1 586         | 38         | 29         | 1 527         | 38         | 30         |
| Yzerfontein         | 1 811         | 34         | 47         | 1 765         | 32         | 42         | 1 717         | 29         | 45         | 1 626         | 24         | 39         |
| Darling             | 2 554         | 128        | 40         | 2 548         | 115        | 44         | 2 538         | 114        | 45         | 2 519         | 112        | 46         |
| Moorreesburg        | 2 944         | 195        | 58         | 2 933         | 194        | 59         | 2 920         | 196        | 59         | 2 892         | 194        | 59         |
| Malmesbury          | 8 568         | 427        | 424        | 8 497         | 419        | 424        | 8 327         | 406        | 423        | 7 955         | 400        | 420        |
| Abbotsdale          | 1 147         | 0          | 13         | 1 139         | 0          | 12         | 1 135         | 0          | 12         | 1 127         | 0          | 13         |
| Kalbaskraal         | 636           | 4          | 17         | 622           | 4          | 16         | 606           | 4          | 17         | 581           | 4          | 16         |
| Riverlands          | 329           | 1          | 10         | 330           | 1          | 10         | 330           | 1          | 10         | 330           | 1          | 9          |
| Chatsworth          | 1 051         | 3          | 19         | 1 036         | 3          | 18         | 1 030         | 3          | 18         | 995           | 2          | 18         |
| <b>TOTALS</b>       | <b>22 075</b> | <b>894</b> | <b>712</b> | <b>21 873</b> | <b>868</b> | <b>708</b> | <b>21 596</b> | <b>854</b> | <b>718</b> | <b>20 938</b> | <b>839</b> | <b>711</b> |

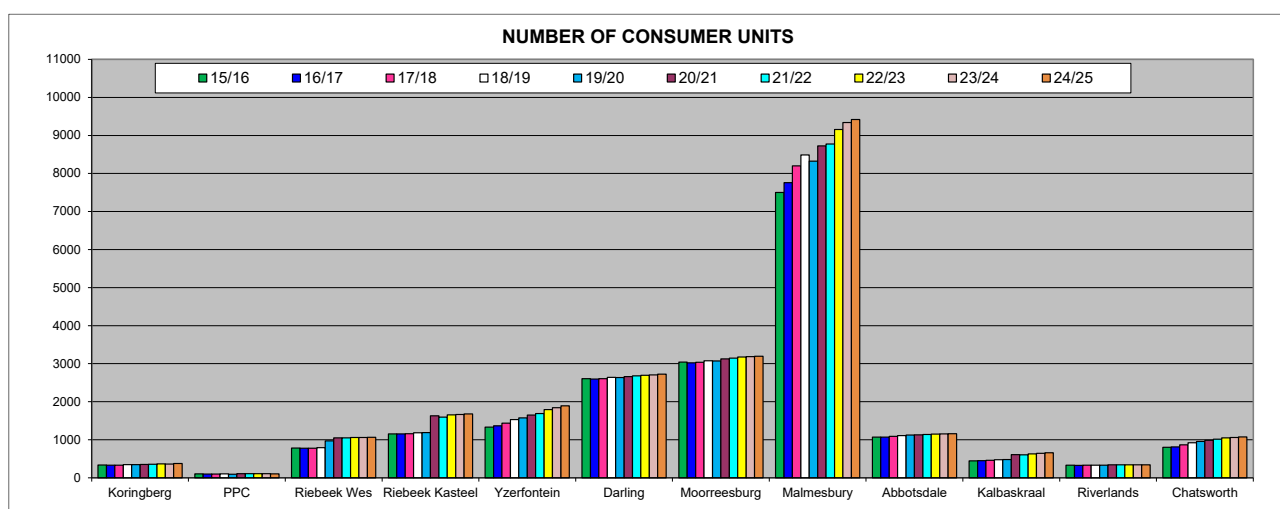


Figure C.2.1.7: Number of billed metered consumers per water distribution system

The annual total number of Billed Metered Consumers for the various water distribution systems and the annual growth over the period 2015/2016 to 2024/2025 are summarised in the table below.

| Distribution System | Annual Growth %<br>15/16 – 24/25 | 24/25 | 23/24 | 22/23 | 21/22 | 20/21 | 19/20 | 18/19 | 17/18 | 16/17 | 15/16 |
|---------------------|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Koringberg          | 1.23%                            | 374   | 357   | 363   | 354   | 351   | 347   | 346   | 333   | 333   | 335   |
| Ongegund            | 0.22%                            | 104   | 107   | 109   | 109   | 109   | 94    | 105   | 99    | 100   | 102   |
| Riebeek Wes         | 3.46%                            | 1 063 | 1 058 | 1 058 | 1 048 | 1 049 | 973   | 793   | 777   | 779   | 783   |
| Riebeek Kasteel     | 4.29%                            | 1 680 | 1 664 | 1 653 | 1 595 | 1 631 | 1 189 | 1 184 | 1 158 | 1 154 | 1 151 |
| Yzerfontein         | 3.99%                            | 1 892 | 1 839 | 1 791 | 1 689 | 1 650 | 1 577 | 1 528 | 1 435 | 1 366 | 1 330 |
| Darling             | 0.48%                            | 2 722 | 2 707 | 2 697 | 2 678 | 2 661 | 2 636 | 2 638 | 2 602 | 2 598 | 2 607 |
| Moorreesburg        | 0.56%                            | 3 197 | 3 186 | 3 175 | 3 144 | 3 126 | 3 073 | 3 077 | 3 036 | 3 024 | 3 040 |
| Malmesbury          | 2.56%                            | 9 419 | 9 340 | 9 156 | 8 775 | 8 728 | 8 325 | 8 487 | 8 203 | 7 760 | 7 500 |
| Abbotsdale          | 0.89%                            | 1 160 | 1 151 | 1 147 | 1 140 | 1 131 | 1 122 | 1 109 | 1 087 | 1 069 | 1 071 |
| Kalbaskraal         | 4.40%                            | 657   | 642   | 627   | 601   | 610   | 479   | 474   | 462   | 450   | 446   |
| Riverlands          | 0.37%                            | 340   | 341   | 341   | 340   | 341   | 333   | 333   | 331   | 328   | 329   |
| Chatsworth          | 3.27%                            | 1 073 | 1 057 | 1 051 | 1 015 | 983   | 956   | 922   | 864   | 812   | 802   |

| Table C.2.1.4: Total number of billed metered consumers per water distribution system and the annual percentage growth from 2015/2016 to 2024/2025 |                                  |               |               |               |               |               |               |               |               |               |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Distribution System                                                                                                                                | Annual Growth %<br>15/16 – 24/25 | 24/25         | 23/24         | 22/23         | 21/22         | 20/21         | 19/20         | 18/19         | 17/18         | 16/17         | 15/16         |
| <b>TOTALS</b>                                                                                                                                      | <b>2.18%</b>                     | <b>23 681</b> | <b>23 449</b> | <b>23 168</b> | <b>22 488</b> | <b>22 370</b> | <b>21 104</b> | <b>20 996</b> | <b>20 387</b> | <b>19 773</b> | <b>19 496</b> |

The number of new water and sanitation connection made:

The financial system indicated that the number of billed metered residential consumers increased with 202 for the 2024/2025 financial year. The billed metered “Business” and “Other” consumers increased by 30 consumers, as also indicated in Tables C.2.1.1, C.2.1.2 and C.2.1.3. The stats from the Engineering Department indicated that 143 new water connections and 21 new sewer connections were installed during the 2024/2025 financial year.

## C.2.2. Residential Water Services Delivery Access Profile

The Revised Compulsory National Water and Sanitation Standards, as published in the Government Gazette No.52814 of 6 June 2025, make provision for the following standards for basic water supply services.

| Table C.2.2.1: Basic water supply services                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>A WSA is responsible for the provision of basic water supply services to all consumers or potential consumers in its jurisdictional area inclusive of people residing on privately owned land as guided by the Water and Sanitation Services Policy on Privately Owned Land (2023).</li> <li>The minimum standard for basic water services must consist of:             <ul style="list-style-type: none"> <li>Within two years of promulgation of these regulations an access or delivery point which must be at least at the end boundary of the yard (user connection point) of the existing settlement.</li> <li>A minimum quantity of drinking water of 6 kl/household per month -                 <ul style="list-style-type: none"> <li>at a minimum flow rate of not less than 10 litres per minute.</li> <li>with an effectiveness such that water is made available for at least 358 days per year.</li> <li>not interrupted for longer than 48 consecutive hours.</li> <li>at no cost to indigent households, upon depletion of the initial 6 kl per month allocation, qualifying indigent household will be subject to usage restrictions and will be responsible for payment based on the adopted tariff policy for any additional water consumed.</li> </ul> </li> <li>Water provided which complies with the requirements of SANS 241.</li> </ul> </li> <li>Maintenance of the infrastructure up to the user connection is the responsibility of the Water Services Institution and the maintenance of the infrastructure within the boundary of the property is the responsibility of the owner.</li> <li>All new users applications for water connections must be completed within 21 calendar days by a WSA in areas where the infrastructure allows or exist.</li> <li>All user connections for water supply must be metered or measured, controlled and tarified by the relevant Water Services Institution.</li> <li>A Water Services Institution must replace stolen meters and or repair or replace damaged meters within 30 days of it being reported or detected.</li> <li>Water meters must be managed and replaced within their asset lifespan.</li> <li>The Water Services Institution must ensure the provision of appropriate education in respect of safe, effective and efficient water use, hygiene and groundwater use management.</li> <li>Within two years after promulgation of these Regulations, WSA must submit plans to the Department, using the WSDP platform as part of their WSDP on how they are going to upgrade all consumers in formal settlements to basic services (yard connection; user connection point).</li> </ul> |



The table below gives an overview of the water services delivery access profile of Swartland Municipality.

| Table C.2.2.2: Residential Water Services Delivery Access Profile: Water                                     |                                                       |                     |             |                       |             |                       |             |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------|-------------|-----------------------|-------------|-----------------------|-------------|
| Census Category                                                                                              | Description                                           | Year 0<br>FY2024/25 |             | Year - 1<br>FY2023/24 |             | Year - 2<br>FY2022/23 |             |
|                                                                                                              |                                                       | Nr                  | %           | Nr                    | %           | Nr                    | %           |
|                                                                                                              | <b>WATER (ABOVE MIN LEVEL)</b>                        |                     |             |                       |             |                       |             |
| Piped (tap) water inside dwelling/institution                                                                | House connections                                     | 31 589              | 62%         | 30 997                | 63%         | 30 344                | 64%         |
| Piped (tap) water inside yard                                                                                | Yard connections                                      | 18 038              | 35%         | 16 691                | 34%         | 15 482                | 33%         |
| Piped (tap) water on community stand:<br>distance less than 200m from<br>dwelling/institution                | Standpipe connection<br>< 200 m                       | 335                 | 1%          | 335                   | 1%          | 335                   | 1%          |
|                                                                                                              | <b>Sub-Total: Minimum Service<br/>Level and Above</b> | <b>49 962</b>       | <b>98%</b>  | <b>48 023</b>         | <b>98%</b>  | <b>46 161</b>         | <b>98%</b>  |
|                                                                                                              | <b>WATER (BELOW MIN LEVEL)</b>                        |                     |             |                       |             |                       |             |
| Piped (tap) water on community stand:<br>distance between 200m and 500m from<br>dwelling/institution         | Standpipe connection:<br>> 200 m < 500 m              | 61                  | 0%          | 61                    | 0%          | 61                    | 0%          |
| Piped (tap) water on community stand:<br>distance between 500m and 1000m (1km)<br>from dwelling /institution | Standpipe connection:<br>> 500 m < 1 000 m            | 18                  | 0%          | 18                    | 0%          | 18                    | 0%          |
| Piped (tap) water on community stand:<br>distance greater than 1000m (1km) from<br>dwelling/institution      | Standpipe connection:<br>> 1 000 m                    | 3                   | 0%          | 3                     | 0%          | 3                     | 0%          |
| No access to piped (tap) water                                                                               | No services                                           | 1 025               | 2%          | 925                   | 2%          | 925                   | 2%          |
|                                                                                                              | <b>Sub-Total: Below Minimum<br/>Service Level</b>     | <b>1 107</b>        | <b>2%</b>   | <b>1 007</b>          | <b>2%</b>   | <b>1 007</b>          | <b>2%</b>   |
|                                                                                                              | <b>Total number of households</b>                     | <b>51 069</b>       | <b>100%</b> | <b>49 030</b>         | <b>100%</b> | <b>47 168</b>         | <b>100%</b> |

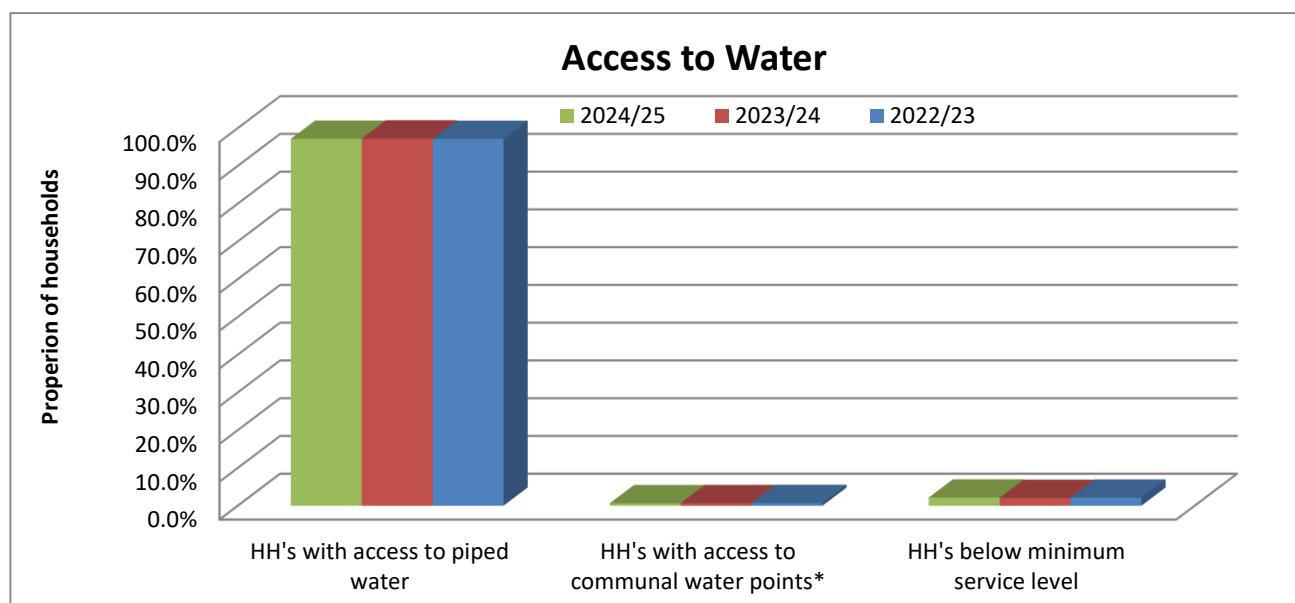


Figure C.2.2.1: Household water access profile

The existing water service levels in Swartland Municipality's Management Area are estimated as follows:

| Service Level                                           | Malmesbury    | Abbotsdale   | Riverlands | Chatsworth   | Kalbas-kraal | Riebeeck Kasteel | Riebeeck Wes | Darling      | Moorreesburg | Koringberg | Yzerfontein  | Farms            | Total         |
|---------------------------------------------------------|---------------|--------------|------------|--------------|--------------|------------------|--------------|--------------|--------------|------------|--------------|------------------|---------------|
| No Water Services                                       | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 75 <sup>2)</sup> | <b>75</b>     |
| Below RDP: Infrastructure Upgrade                       | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| Below RDP: Infrastructure Extension                     | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 82 <sup>3)</sup> | <b>82</b>     |
| Below RDP: Infrastructure Refurbishment                 | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| Below RDP: O&M Needs                                    | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| Below RDP: Water Resource Needs                         | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| Below RDP: Infrastructure and O&M Needs                 | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| Below RDP: Infrastructure, O&M and Water Resource Needs | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| <b>Total Basic Need (RDP)</b>                           | <b>0</b>      | <b>0</b>     | <b>0</b>   | <b>0</b>     | <b>0</b>     | <b>0</b>         | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>   | <b>0</b>     | <b>157</b>       | <b>157</b>    |
| Below Housing Interim <sup>4)</sup>                     | 0             | 0            | 0          | 950          | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>950</b>    |
| Adequate Housing Permanent <sup>5)</sup>                | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 0                | <b>0</b>      |
| <b>Total Housing Need</b>                               | <b>0</b>      | <b>0</b>     | <b>0</b>   | <b>950</b>   | <b>0</b>     | <b>0</b>         | <b>0</b>     | <b>0</b>     | <b>0</b>     | <b>0</b>   | <b>0</b>     | <b>0</b>         | <b>950</b>    |
| Standpipes                                              | 0             | 0            | 0          | 0            | 0            | 0                | 0            | 0            | 0            | 0          | 0            | 335              | <b>335</b>    |
| Yard Connections <sup>6)</sup>                          | 8 220         | 210          | 19         | 10           | 607          | 1 631            | 1 369        | 1 068        | 3 213        | 172        | 0            | 1 519            | <b>18 038</b> |
| House Connections <sup>1)</sup>                         | 8 568         | 1 147        | 329        | 1 051        | 636          | 1 610            | 1 069        | 2 554        | 2 944        | 356        | 1 811        | 9 514            | <b>31 589</b> |
| <b>Total Adequate</b>                                   | <b>16 788</b> | <b>1 357</b> | <b>348</b> | <b>1 061</b> | <b>1 243</b> | <b>3 241</b>     | <b>2 438</b> | <b>3 622</b> | <b>6 157</b> | <b>528</b> | <b>1 811</b> | <b>11 368</b>    | <b>49 962</b> |
| <b>Total per Area</b>                                   | <b>16 788</b> | <b>1 357</b> | <b>348</b> | <b>2 011</b> | <b>1 243</b> | <b>3 241</b>     | <b>2 438</b> | <b>3 622</b> | <b>6 157</b> | <b>528</b> | <b>1 811</b> | <b>11 525</b>    | <b>51 069</b> |

Notes: 1) Number of residential billed metered consumer units for the various towns for 2024/2025, as calculated from the financial data.

2) Census 2011: Number of households with no access to piped (tap) water 75

3) Census 2011: Number of households with communal services (200m – 500m) 61, (500m – 1000m) 18 and (>1000m) 3

4) Below Housing Interim in the above table is the number of households in informal areas without basic water services. There is an estimated 950 informal households in Chatsworth without basic water services.

5) Adequate Housing Permanent in the above table is the number of informal households in informal areas with communal water services.

6) Projected number of residential households (2024/2025) – Number of residential billed metered consumers (2024/2025) = Estimated number of backyard dwellers.

The Revised Compulsory National Water and Sanitation Standards, as published in the Government Gazette No.52814 of 6 June 2025, make provision for the following standards for basic sanitation supply services.

**Table C.2.2.4: Basic sanitation supply services**

- A WSA is responsible for the provision of basic sanitation services to all consumers or potential consumers in its jurisdictional area inclusive of people residing on privately owned land as guided by the Water and Sanitation Services Policy on Privately Owned Land (2023).
- The standard for basic sanitation services must include the provision of a toilet with functional hand washing facility in the yard, which is safe, reliable for 24 hours a day, environmentally sound, easy to keep clean, provides privacy and protection against the weather, well ventilated, keeps smells to a minimum and prevents the entry and exit of flies and other disease-carrying pests, providing for an effective and acceptable sanitation technology.
- A WSA must ensure that human excreta and wastewater is safely contained at all times, throughout the sanitation service chain.
- Faecal sludge management must be an integral part of the sanitation service.
- Each household must have uninterrupted access to an adequate, appropriate sanitation facility.
- Hygiene and user education must be an integral part of sanitation service. Households should be supported with knowledge and any other relevant resources to take responsibility for the correct and consistent use of the sanitation service, including but not limited to the toilet facility.
- In providing basic sanitation service, a WSA must consider the following requirements:
  - The need for everyone, including persons with a disability to have a reasonable quality of life.
  - Water efficient sanitation solutions.
  - Groundwater pollution risks in accordance with the Protocol to manage the potential groundwater contamination from on-site sanitation (2003).
  - Water use authorisation in terms of the NWA.
  - Surface water pollution risks and the management thereof.
  - Population density.
  - Economies of scale.
- Subject to the above, a WSA must consider-
  - In high and medium density formal settlements:
    - waterborne sewerage sanitation provided that the wastewater treatment system and works have adequate capacity and is performing to acceptable standards under the National Water Act (read with regulation 10); or
    - alternative water efficient sanitation solutions instead of waterborne sewerage systems in areas of dense formal and medium settlement where there is resource scarcity and or inadequate capacity or functionality in the sewer system and or the wastewater treatment works.
  - In low density or sparsely populated settlements: water efficient sanitation solutions.
- Water efficient sanitation solutions, as described above, must be shown to include off-grid, on-site sanitation options such as Non-sewered Sanitation Systems (NSSS) as well as Decentralised Wastewater Treatment Systems (DWWTS).
- A WSA may not unreasonably decline a property development to have a water efficient sanitation solution that is not connected to the central system where development will manage the system as a Water Services Intermediary and where the water uses of the system is authorised under the National Water Act.
- Whenever a Water Services Institution is providing new innovative non-sewered sanitation systems, such must be guided by the requirements of SANS 30500 for Non-Sewered Sanitation Systems or the "SANS 24521:2020 Guidelines for the management of basic on-site domestic wastewater services", whichever is applicable.
- WSA must monitor and regulate safe emptying, transportation, treatment and disposal of faecal sludge to faecal sludge treatment facilities or any other authorised facility.
- Faecal sludge treatment plants must be guided by ISO 31800 for prefabricated units or similar standards for non-prefabricated faecal sludge treatment units.
- WSA must have community participation procedures of informing communities about the emptying processes, routes and health risks.
- Within two years after promulgation of these Regulations, the WSA must submit plans as part of their WSDP, using the WSDP platform, on measures to eradicate unimproved pit toilets and open defaecation in human settlements.

The table below gives an overview of the sanitation services delivery access profile of Swartland Municipality.

| Table C.2.2.5: Residential Water Services Delivery Access Profile: Sanitation |                                                   |                     |             |                       |             |                       |             |
|-------------------------------------------------------------------------------|---------------------------------------------------|---------------------|-------------|-----------------------|-------------|-----------------------|-------------|
| Census Category                                                               | Description                                       | Year 0<br>FY2024/25 |             | Year - 1<br>FY2023/24 |             | Year - 2<br>FY2022/23 |             |
|                                                                               |                                                   | Nr                  | %           | Nr                    | %           | Nr                    | %           |
|                                                                               | <b>SANITATION (ABOVE MIN LEVEL)</b>               |                     |             |                       |             |                       |             |
| Flush toilet (connected to sewerage system)                                   | Waterborne                                        | 35 951              | 70%         | 34 683                | 71%         | 33 044                | 70%         |
|                                                                               | Waterborne: Low Flush                             | 0                   | 0%          | 0                     | 0%          | 0                     | 0%          |
| Flush toilet (with septic tank)                                               | Septic tanks / Conservancy                        | 12 312              | 24%         | 11 641                | 24%         | 11 418                | 24%         |
| Chemical toilet                                                               |                                                   | 54                  | 0%          | 54                    | 0%          | 54                    | 0%          |
| Pit toilet with ventilation (VIP)                                             | Non-waterborne (above min. service level)         | 211                 | 0%          | 211                   | 0%          | 211                   | 0%          |
| Other / Communal Services                                                     |                                                   | 0                   | 0%          | 0                     | 0%          | 0                     | 0%          |
|                                                                               | <b>Sub-Total: Minimum Service Level and Above</b> | <b>48 528</b>       | <b>95%</b>  | <b>46 589</b>         | <b>95%</b>  | <b>44 727</b>         | <b>95%</b>  |
|                                                                               | <b>SANITATION (BELOW MIN LEVEL)</b>               |                     |             |                       |             |                       |             |
| Pit toilet without ventilation                                                | Pit toilet                                        | 401                 | 1%          | 401                   | 1%          | 401                   | 1%          |
| Bucket toilet                                                                 | Bucket toilet                                     | 303                 | 1%          | 303                   | 1%          | 303                   | 1%          |
| Other toilet provision (below min. service level)                             | Other                                             | 380                 | 1%          | 380                   | 1%          | 380                   | 1%          |
| No toilet provisions                                                          | No services                                       | 1 457               | 3%          | 1 357                 | 3%          | 1 207                 | 3%          |
|                                                                               | <b>Sub-Total: Below Minimum Service Level</b>     | <b>2 541</b>        | <b>5%</b>   | <b>2 441</b>          | <b>5%</b>   | <b>2 291</b>          | <b>5%</b>   |
|                                                                               | <b>Total number of households</b>                 | <b>51 069</b>       | <b>100%</b> | <b>49 030</b>         | <b>100%</b> | <b>47 018</b>         | <b>100%</b> |

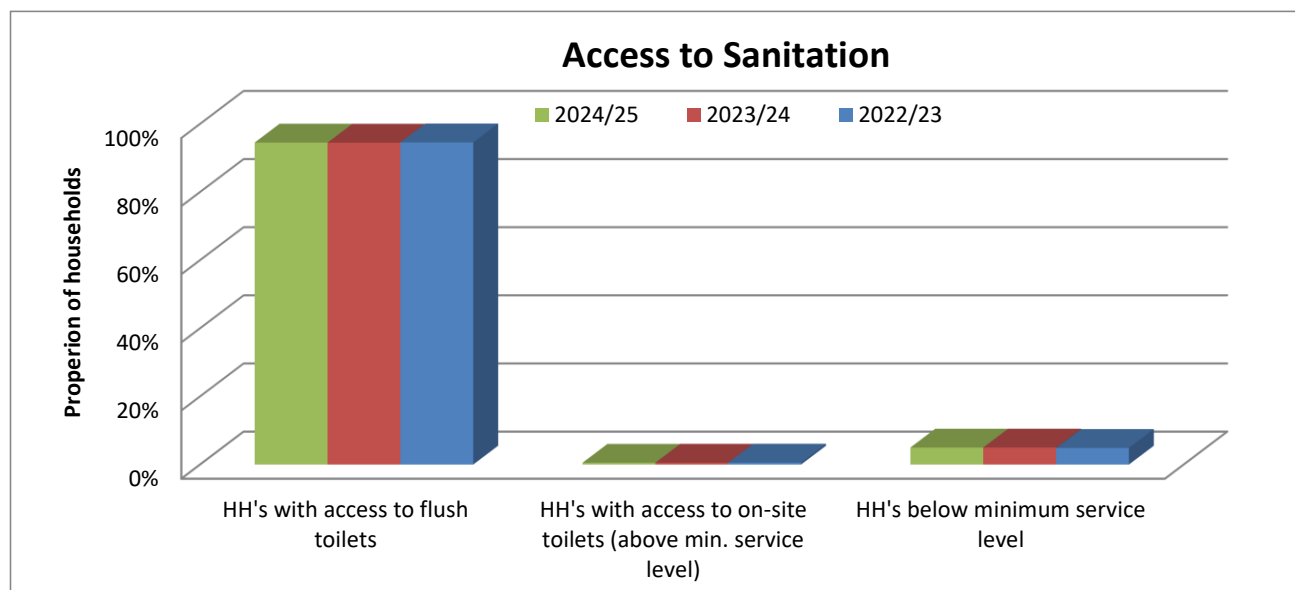


Figure C.2.2.2: Household sanitation access profile

The existing sanitation service levels in Swartland Municipality's Management Area are estimated as follows:

| <b>Service Levels</b>                                   | <b>Malmesbury</b> | <b>Abbotsdale</b> | <b>Riverlands</b> | <b>Chatsworth</b> | <b>Kalbas-kraal</b> | <b>Riebeek Kasteel</b> | <b>Riebeek Wes</b> | <b>Darling</b> | <b>Moorreesburg</b> | <b>Koringberg</b> | <b>Yzerfontein</b> | <b>Farms</b>        | <b>Total</b>  |
|---------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|---------------------|------------------------|--------------------|----------------|---------------------|-------------------|--------------------|---------------------|---------------|
| No Sanitation Services                                  | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 507 <sup>3)</sup>   | <b>507</b>    |
| Below RDP: Infrastructure Upgrade                       | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 1 138 <sup>4)</sup> | <b>1 138</b>  |
| Below RDP: Infrastructure Extension                     | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| Below RDP: Infrastructure Refurbishment                 | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| Below RDP: O&M Needs                                    | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| Below RDP: Water Resource Needs                         | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| Below RDP: Infrastructure and O&M Needs                 | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| Below RDP: Infrastructure, O&M and Water Resource Needs | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| <b>Total Basic Need (RDP)</b>                           | <b>0</b>          | <b>0</b>          | <b>0</b>          | <b>0</b>          | <b>0</b>            | <b>0</b>               | <b>0</b>           | <b>0</b>       | <b>0</b>            | <b>0</b>          | <b>0</b>           | <b>1 645</b>        | <b>1 645</b>  |
| Below Housing Interim <sup>6)</sup>                     | 0                 | 0                 | 0                 | 950               | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>950</b>    |
| Adequate Housing Permanent <sup>7)</sup>                | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| <b>Total Housing Need</b>                               | <b>0</b>          | <b>0</b>          | <b>0</b>          | <b>950</b>        | <b>0</b>            | <b>0</b>               | <b>0</b>           | <b>0</b>       | <b>0</b>            | <b>0</b>          | <b>0</b>           | <b>0</b>            | <b>950</b>    |
| Non-Waterborne                                          | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 211 <sup>5)</sup>   | <b>211</b>    |
| Waterborne Low Flush                                    | 0                 | 0                 | 0                 | 0                 | 0                   | 0                      | 0                  | 0              | 0                   | 0                 | 0                  | 0                   | <b>0</b>      |
| Septic Tanks / Conservancy <sup>1)</sup>                | 15                | 12                | 3                 | 143               | 119                 | 62                     | 219                | 29             | 99                  | 131               | 1811               | 9 669               | <b>12 312</b> |
| Waterborne WWTW <sup>2)</sup>                           | 16 773            | 1 345             | 345               | 918               | 1 124               | 3 179                  | 2 219              | 3 593          | 6 058               | 397               | 0                  | 0                   | <b>35 951</b> |
| <b>Total Adequate</b>                                   | <b>16 788</b>     | <b>1 357</b>      | <b>348</b>        | <b>1 061</b>      | <b>1 243</b>        | <b>3 241</b>           | <b>2 438</b>       | <b>3 622</b>   | <b>6 157</b>        | <b>528</b>        | <b>1 811</b>       | <b>9 880</b>        | <b>48 474</b> |
| <b>Total per Area</b>                                   | <b>16 788</b>     | <b>1 357</b>      | <b>348</b>        | <b>2 011</b>      | <b>1 243</b>        | <b>3 241</b>           | <b>2 438</b>       | <b>3 622</b>   | <b>6 157</b>        | <b>528</b>        | <b>1 811</b>       | <b>11 525</b>       | <b>51 069</b> |

Notes: 1) The number of tanks per town was calculated from the total number of tanks pumped during 2024/2025 divided by 5.

2) Include Backyard dwellers

3) Census 2011: Number of households with no toilet facility 507.

4) Census 2011: Number of households with existing buckets 303, chemical toilets 54, pit toilets without ventilation 401 and "other" 380

5) Census 2011: Number of households with pit toilets with ventilation 211.

6) Inadequate Housing Interim in the above table is the number of informal households in informal areas without basic sanitation services. There is an estimated 950 informal households in Chatsworth without basic sanitation services.

7) Inadequate Housing Permanent in the above table is the number of informal households in informal areas with communal ablution facilities.

### Number of households provided with water through communal water services:

The Revised Compulsory National Water and Sanitation Standards, as published in the Government Gazette No.52814 of 6 June 2025, also make provision for the following standards for interim water and sanitation supply services.

| <b>Table C.2.2.7: Interim water and sanitation supply services</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interim water supply services</b> <ul style="list-style-type: none"> <li>• A WSA must take reasonable measures to provide interim water supply services in informal settlements.</li> <li>• Upon realisation of a new informal settlement, the WSA must provide interim water supply services within 90 days of becoming aware thereof.</li> <li>• A WSA is responsible for the capital, operation, maintenance and refurbishment actions and cost pertaining to interim water services.</li> <li>• Where an informal settlement is formalised, a WSA must ensure access to basic water services.</li> <li>• The minimum standard for interim water services must consist of: <ul style="list-style-type: none"> <li>➢ An access or delivery point which must be a communal standpipe, within a reasonable walking distance of no more than 200m from the furthest household.</li> <li>➢ A minimum quantity of drinking water of 6 kl/household per month - <ul style="list-style-type: none"> <li>• at a minimum flow rate of not less than 10 litres per minute.</li> <li>• with an effectiveness such that water is made available for at least 358 days per year.</li> <li>• not interrupted for longer than 48 consecutive hours.</li> </ul> </li> <li>➢ Water provided which complies with the requirements of SANS 241.</li> </ul> </li> <li>• All areas supplied with interim water supply services must have zonal meters and measured by the relevant Water Services Institution.</li> <li>• Whenever interim water supply services are provided through water tankers, it must not exceed 12 consecutive months and WSAs need to keep accurate records as specified in Regulation 4(3)(c).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Interim sanitation supply services</b> <ul style="list-style-type: none"> <li>• A WSA is responsible for the capital, operation, maintenance and refurbishment actions and cost pertaining to interim sanitation services including the management of faecal sludge in the entire sanitation service chain.</li> <li>• A WSA must take reasonable measures to provide appropriate interim sanitation services in informal settlements and during a disaster.</li> <li>• Upon realisation of a new informal settlement, the WSA must provide interim sanitation services within 90 days.</li> <li>• Interim sanitation services must provide at least the following: <ul style="list-style-type: none"> <li>➢ Communal and shared facilities in accordance with the following: <ul style="list-style-type: none"> <li>• Communal toilet: Toilet seat – 1 seat per 10 households; Urinal units – 1 unit per 20 households; Hand washing – 1 basin per 10 households.</li> <li>• Shared toilets: Toilet seat – 1 unit per 4 households; Urinal units – 1 unit per 10 households; Hand washing – 1 basin per 4 households.</li> </ul> </li> <li>➢ The WSA must put measures in place to keep the toilets hygienic.</li> <li>➢ The toilets must be separated according to gender to meet the needs for women, girls and persons with disability.</li> <li>➢ All portable and mobile toilets must be emptied at least twice a week to appropriate licensed facilities for treatment.</li> </ul> </li> <li>• If the sanitation facility is communal, the maximum walking distance should be 100m, wherever possible.</li> <li>• Parents and care givers must be provided with information by the Water Services Institution regarding safe disposal of infant's faeces, laundering practices and use of nappies, potties or scoops for effectively managing safe disposal.</li> <li>• A WSA through its Environmental Health Practitioners are responsible for promoting hygiene and user education for ensuring an environmentally safe approach to sanitation and for monitoring the impact of sanitation processes on the environment.</li> </ul> |

All the formal households in the urban areas of Swartland Municipality's Management Area are provided with water and sewer connections inside the erven. Informal areas are supplied with shared services as an intermediary measure. There are an estimated 950 informal households in Chatsworth with no access to shared water and sanitation services.

The only other areas where communal water services are in use is on some of the farms in the rural areas. Swartland Municipality is committed to work with the private landowners to ensure that at least basic water and sanitation services are provided to those households in the rural areas with existing services still below RDP standard.

All the schools and tertiary education facilities in Swartland Municipality's urban areas are provided with adequate water and sanitation services and there is no backlog with regard to water and sanitation services for the schools in the urban areas. The service levels of the primary schools in the rural areas however need to be verified. The existing water and sanitation service levels for all the schools in the Swartland Municipality Management Area is summarised in the table below.

| Table C.2.2.8: Service Levels at Schools |                      |                                   |                             |                                     |                                   |                             |                                     |
|------------------------------------------|----------------------|-----------------------------------|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------|-------------------------------------|
| Associated Services Facility             | Number of Facilities | Water                             |                             |                                     | Sanitation                        |                             |                                     |
|                                          |                      | Facilities with Adequate Services | Facilities with no Services | Facilities with inadequate Services | Facilities with Adequate Services | Facilities with no Services | Facilities with inadequate Services |
| Primary school                           | 26                   | 16                                | 10 (To be verified)         |                                     | 16                                | 10 (To be verified)         |                                     |
| Secondary school                         | 5                    | 5                                 | 0                           | 0                                   | 5                                 | 0                           | 0                                   |
| Tertiary                                 | 1                    | 1                                 | 0                           | 0                                   | 1                                 | 0                           | 0                                   |
| Combined                                 | 5                    | 5                                 | 0                           | 0                                   | 5                                 | 0                           | 0                                   |
| Special needs                            | 1                    | 1                                 | 0                           | 0                                   | 1                                 | 0                           | 0                                   |
| Other                                    | 24                   | 22                                | 2 (To be verified)          |                                     | 22                                | 2 (To be verified)          |                                     |
| <b>Total</b>                             | <b>62</b>            | <b>50</b>                         | <b>12 (To be verified)</b>  |                                     | <b>50</b>                         | <b>12 (To be verified)</b>  |                                     |

Source for number of facilities: Swartland Municipality's WSDP, July 2024

All the medical facilities in Swartland Municipality's Management Area are provided with adequate water and sanitation services and there is no backlog with regard to water and sanitation services for the medical facilities. The existing water and sanitation service levels for all the Medical Facilities in Swartland Municipality's Management Area are summarised in the table below.

| Table C.2.2.9: Service Levels at Medical Facilities |                      |                                   |                             |                                     |                                   |                             |                                     |
|-----------------------------------------------------|----------------------|-----------------------------------|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------|-------------------------------------|
| Associated Services Facility                        | Number of Facilities | Water                             |                             |                                     | Sanitation                        |                             |                                     |
|                                                     |                      | Facilities with Adequate Services | Facilities with no Services | Facilities with inadequate Services | Facilities with Adequate Services | Facilities with no Services | Facilities with inadequate Services |
| Hospitals                                           | 2                    | 2                                 | 0                           | 0                                   | 2                                 | 0                           | 0                                   |
| Health Centres                                      | 2                    | 2                                 | 0                           | 0                                   | 2                                 | 0                           | 0                                   |
| Fixed Clinics                                       | 4                    | 4                                 | 0                           | 0                                   | 4                                 | 0                           | 0                                   |
| Mobile/Satellite Clinics                            | 7                    | 7                                 | 0                           | 0                                   | 7                                 | 0                           | 0                                   |

Source for number of facilities: Swartland Municipality's WSDP, July 2024

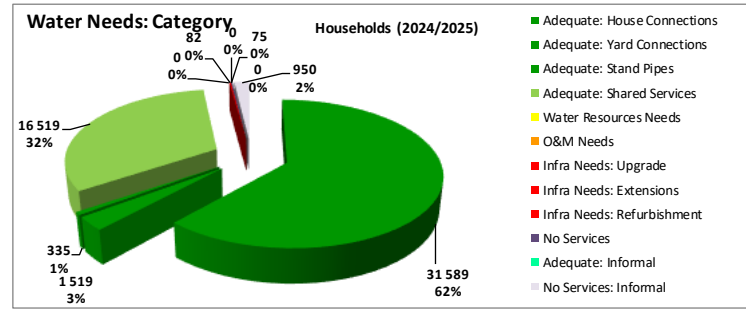
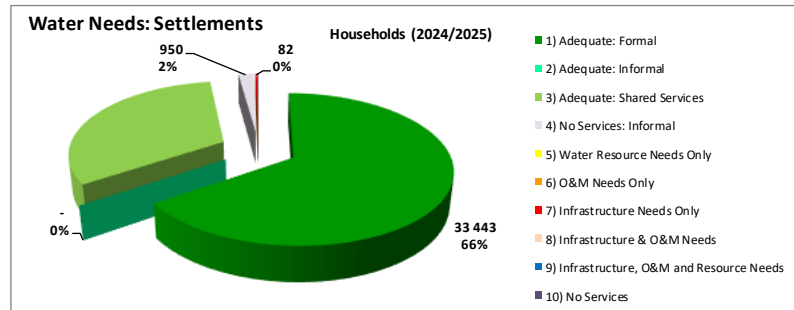


### C.2.3. Residential Water Services Delivery Adequacy Profile

The existing residential water service levels in Swarthland Municipality's Management Area are estimated as follows:

**Table C.2.3.1: Residential Water Services Delivery Adequacy Profile (Water)**

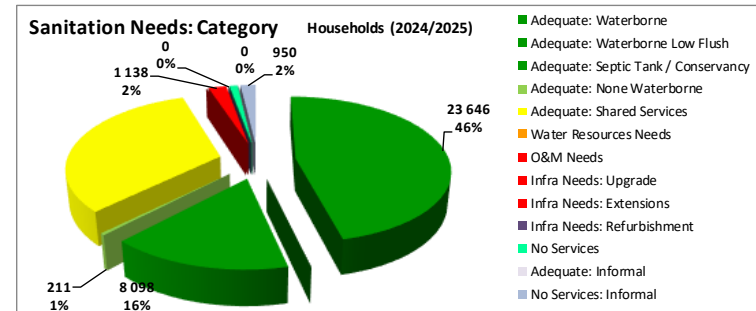
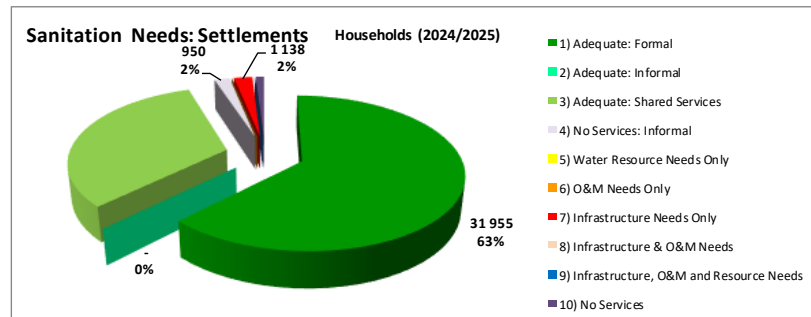
| Water<br>Categorisation                | Number of<br>settlements | FORMAL               |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      | INFORMAL    |   |          |   |             |      |
|----------------------------------------|--------------------------|----------------------|------|---------------------|------|-------------|------|--------------------|------|----------------------------|---|-------------|---|----------------------|----|------------|---|---------------|------|-------------|---|----------|---|-------------|------|
|                                        |                          | Adequate             |      |                     |      |             |      |                    |      | Water<br>Resource<br>needs |   | O & M Needs |   | Infrastructure Needs |    |            |   |               |      | No services |   | Adequate |   | No services |      |
|                                        |                          | House<br>Connections |      | Yard<br>Connections |      | Stand Pipes |      | Shared<br>Services |      |                            |   |             |   | Upgrades             |    | Extensions |   | Refurbishment |      |             |   |          |   |             |      |
|                                        |                          | HH                   | %    | HH                  | %    | HH          | %    | HH                 | %    | HH                         | % | HH          | % | HH                   | %  | HH         | % | HH            | %    | HH          | % | HH       | % |             |      |
| 1                                      | 37                       | 31 589               | 100% | 1 519               | 100% | 335         | 100% |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 2                                      | 1                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 3                                      | 10                       |                      |      |                     |      |             |      | 16 519             | 100% |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 4                                      | 1                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   | 950         | 100% |
| 5                                      | 0                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 6                                      | 0                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 7                                      | 3                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      | 82 | 100%       |   |               |      |             |   |          |   |             |      |
| 8                                      | 0                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 9                                      | 0                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   |               |      |             |   |          |   |             |      |
| 10                                     | 3                        |                      |      |                     |      |             |      |                    |      |                            |   |             |   |                      |    |            |   | 75            | 100% |             |   |          |   |             |      |
| Total Household Interventions required |                          | 31 589               |      | 1 519               |      | 335         |      | 16 519             |      | 0                          |   | 0           |   | 0                    |    | 82         |   | 0             |      | 75          |   | 0        |   | 950         |      |



|   |                    |   |                           |   |                                   |   |                                  |    |                                      |
|---|--------------------|---|---------------------------|---|-----------------------------------|---|----------------------------------|----|--------------------------------------|
| 1 | Adequate           | 3 | Adequate: Shared services | 5 | Water Resources Needs <u>Only</u> | 7 | Infrastructure Needs <u>Only</u> | 9  | Infrastructure, O&M & Resource Needs |
| 2 | Adequate: Informal | 4 | No Services: Informal     | 6 | O & M Needs <u>Only</u>           | 8 | Infrastructure & O&M needs       | 10 | No Services                          |

The existing residential sanitation service levels in Swartland Municipality's Management Area are estimated as follows:

| Table C.2.3.2: Residential Water Services Delivery Adequacy Profile (Sanitation) |                          |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
|----------------------------------------------------------------------------------|--------------------------|------------|------|-------------------------|---|-----------------------------|------|--------------------|------|-----------------|------|----------------------------|---|-------------|---|----------------------|------|------------|---|---------------|---|-------------|------|----------|-----|-------------|--|
| Water<br>Categorisation                                                          | Number of<br>settlements | FORMAL     |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   | INFORMAL    |      |          |     |             |  |
|                                                                                  |                          | Adequate   |      |                         |   |                             |      |                    |      |                 |      | Water<br>Resource<br>needs |   | O & M Needs |   | Infrastructure Needs |      |            |   |               |   | No services |      | Adequate |     | No services |  |
|                                                                                  |                          | Waterborne |      | Waterborne<br>Low flush |   | Septic Tank/<br>Conservancy |      | None<br>Waterborne |      | Shared Services |      |                            |   |             |   | Upgrades             |      | Extensions |   | Refurbishment |   |             |      |          |     |             |  |
|                                                                                  |                          | HH         | %    | HH                      | % | HH                          | %    | HH                 | %    | HH              | %    | HH                         | % | HH          | % | HH                   | %    | HH         | % | HH            | % | HH          | %    | HH       | %   |             |  |
| 1                                                                                | 37                       | 23 646     | 100% |                         |   | 8 098                       | 100% | 211                | 100% |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 2                                                                                | 1                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 3                                                                                | 10                       |            |      |                         |   |                             |      |                    |      | 16 519          | 100% |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 4                                                                                | 1                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          | 950 | 100%        |  |
| 5                                                                                | 0                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 6                                                                                | 0                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 7                                                                                | 3                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   | 1 138                | 100% |            |   |               |   |             |      |          |     |             |  |
| 8                                                                                | 0                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 9                                                                                | 0                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   |             |      |          |     |             |  |
| 10                                                                               | 3                        |            |      |                         |   |                             |      |                    |      |                 |      |                            |   |             |   |                      |      |            |   |               |   | 507         | 100% |          |     |             |  |
| Total<br>Household<br>Interventions<br>required                                  |                          | 23 646     |      | 0                       |   | 8 098                       |      | 211                |      | 16 519          |      | 0                          |   | 0           |   | 1 138                |      | 0          |   | 0             |   | 507         |      | 0        |     | 950         |  |



|   |                    |   |                           |   |                                   |   |                                  |    |                                      |
|---|--------------------|---|---------------------------|---|-----------------------------------|---|----------------------------------|----|--------------------------------------|
| 1 | Adequate           | 3 | Adequate: Shared services | 5 | Water Resources Needs <u>Only</u> | 7 | Infrastructure Needs <u>Only</u> | 9  | Infrastructure, O&M & Resource Needs |
| 2 | Adequate: Informal | 4 | No Services: Informal     | 6 | O & M Needs <u>Only</u>           | 8 | Infrastructure & O&M needs       | 10 | No Services                          |

### C.3. Cost Recovery and Free Basic Services

#### C.3.1. Tariffs

The water tariff structures for Swartland Municipality for the 2024/2025 financial year and the previous four financial years are summarised in the table below (Subject to 15% VAT).

| Table C.3.1: Water tariffs for 2024/2025 and the previous four financial years |                             |         |         |         |         |         |
|--------------------------------------------------------------------------------|-----------------------------|---------|---------|---------|---------|---------|
| Consumer/Description                                                           | Category                    | 20/21   | 21/22   | 22/23   | 23/24   | 24/25   |
| All                                                                            | Availability Fees per month | R91-69  | R91-69  | R96-09  | R101-18 | R106-14 |
| Residential Consumers                                                          | Water network charge        | R64-87  | R67-14  | R70-16  | 75-07   | R79-50  |
|                                                                                | 0 – 6 Kl                    | R5-03   | R5-21   | R5-44   | R6-02   | R6-44   |
|                                                                                | 7 – 10 Kl                   | R8-64   | R8-94   | R9-34   | R9-99   | R10-58  |
|                                                                                | 11 – 15 Kl                  | R16-54  | R17-12  | R17-89  | R18-95  | R20-07  |
|                                                                                | 16 – 20 Kl                  | R20-97  | R21-70  | R22-98  | R24-34  | R25-78  |
|                                                                                | 21 – 25 Kl                  | R31-09  | R32-18  | R34-08  | R36-09  | R37-86  |
|                                                                                | 26 – 35 Kl                  | R64-78  | R47-94  | R50-77  | R53-77  | R56-94  |
|                                                                                | 36 Kl and above             | R89-40  | R89-40  | R94-67  | R100-26 | R106-18 |
| Indigent Households                                                            | Water network charge        | R64-87  | R67-14  | R70-16  | R75-07  | R79-50  |
|                                                                                | Free Water 6 Kl (6 Kl EQS)  | R0-00   | R0-00   | R0-00   | R0-00   | R0-00   |
|                                                                                | 7 – 10 Kl                   | R8-64   | R8-94   | R9-34   | R9-99   | R10-58  |
|                                                                                | 11 – 15 Kl                  | R16-54  | R17-12  | R17-89  | R18-95  | R20-07  |
|                                                                                | 16 – 20 Kl                  | R20-97  | R21-70  | R22-98  | R24-34  | R25-78  |
|                                                                                | 21 – 25 Kl                  | R31-09  | R32-18  | R34-08  | R36-09  | R37-86  |
|                                                                                | 26 – 35 Kl                  | R64-78  | R47-94  | R50-77  | R53-77  | R56-94  |
|                                                                                | 36 Kl and above             | R89-40  | R89-40  | R94-67  | R100-26 | R106-18 |
| Agricultural (Residential)                                                     | Water network charge        | R64-87  | R67-14  | R70-16  | R75-07  | R79-50  |
|                                                                                | 0 – 6 Kl                    | R5-03   | R5-21   | R5-44   | R6-02   | R6-44   |
|                                                                                | 7 – 10 Kl                   | R8-64   | R8-94   | R9-34   | R9-99   | R10-58  |
|                                                                                | 11 – 15 Kl                  | R16-54  | R17-12  | R17-89  | R18-95  | R20-07  |
|                                                                                | 16 – 20 Kl                  | R20-97  | R21-70  | R22-98  | R24-34  | R25-78  |
|                                                                                | 21 – 25 Kl                  | R31-09  | R32-18  | R34-08  | R36-09  | R37-86  |
|                                                                                | 26 – 35 Kl                  | R64-78  | R47-94  | R50-77  | R53-77  | R56-94  |
|                                                                                | 36 kl and above             | R89-40  | R89-40  | R94-67  | R100-26 | R106-18 |
| Business / Commercial / Industrial / etc.                                      | Water network charge        | R110-00 | R113-85 | R119-31 | R125-16 | R132-55 |
|                                                                                | Per Kl                      | R21-60  | R22-36  | R23-43  | R24-58  | R26-03  |
| Industrial                                                                     | Water network charge        | -       | -       | -       | -       | R160-00 |
|                                                                                | Per Kl                      | -       | -       | -       | R24-58  | R26-03  |
| Water: Agricultural Business                                                   | Water network charge        | R110-00 | R113-85 | R119-31 | R125-16 | R132-55 |
|                                                                                | Per Kl                      | R21-60  | R22-36  | R23-43  | R24-58  | R26-03  |
| Schools                                                                        | Water network charge        | R68-05  | R70-43  | R73-81  | R77-73  | R82-00  |
|                                                                                | Per Kl                      | R24-02  | R24-86  | R26-33  | R13-81  | R14-62  |
| Government Institutions                                                        | Water network charge        | R68-05  | R70-43  | R119-31 | R125-16 | R132-55 |
|                                                                                | Per Kl                      | R24-02  | R24-86  | R26-33  | R27-88  | R29-52  |
| Sport Clubs                                                                    | Water network charge        | R64-87  | R67-14  | R70-36  | R73-81  | R78-16  |
|                                                                                | Per Kl                      | R22-90  | R23-70  | R24-84  | R26-06  | R27-60  |
| Unaffected (Loadshedding Water Supply)                                         | Per Kl                      | -       | -       | -       | -       | R32-36  |
| Municipality (Departmental)                                                    | Per Kl                      | R6-46   | R6-46   | R6-46   | R6-84   | R7-18   |
| Raw Water (Untreated) to Anne Pienaar Primary School                           | From first Kl               | R4-08   | R4-32   | R4-32   | R5-79   | R7-76   |
| 5% Increase in Tariffs Residential and Agricultural Residential                | Water network charge        | R64-87  | R67-14  | R70-16  | R75-07  | R79-50  |
|                                                                                | 0 – 6 Kl                    | R5-28   | R5-47   | R5-72   | R6-32   | R6-76   |
|                                                                                | 7 – 10 Kl                   | R9-07   | R9-39   | R9-81   | R10-49  | R11-11  |
|                                                                                | 11 – 15 Kl                  | R17-37  | R17-97  | R18-78  | R19-90  | R21-07  |
|                                                                                | 16 – 20 Kl                  | R22-02  | R22-79  | R24-13  | R25-56  | R27-07  |
|                                                                                | 21 – 25 Kl                  | R32-64  | R33-79  | R35-78  | R37-89  | R39-75  |
|                                                                                | 26 – 35 Kl                  | R68-02  | R50-34  | R53-31  | R56-46  | R59-79  |
|                                                                                | 36 kl and above             | R93-87  | R93-87  | R99-40  | R105-27 | R111-49 |

| Table C.3.1: Water tariffs for 2024/2025 and the previous four financial years                  |                      |         |         |         |         |         |
|-------------------------------------------------------------------------------------------------|----------------------|---------|---------|---------|---------|---------|
| Consumer/Description                                                                            | Category             | 20/21   | 21/22   | 22/23   | 23/24   | 24/25   |
| 5% Increase in Tariffs Businesses / Commercial / Industrial / Business Agricultural             | Water network charge | R110-00 | R113-85 | R119-31 | R125-16 | R132-55 |
|                                                                                                 | From first KI        | R22-68  | R23-47  | R24-60  | R25-81  | R27-33  |
| 5% Increase in Tariffs Industrial                                                               | Water network charge | -       | -       | -       | -       | R160-00 |
|                                                                                                 | From first KI        | -       | -       | -       | R25-81  | R27-33  |
| 5% Increase in Tariffs Schools                                                                  | Water network charge | R68-05  | R70-43  | R73-81  | R77-43  | R82-00  |
|                                                                                                 | From first KI        | R25-22  | R26-10  | R27-65  | R14-50  | R15-35  |
| 5% Increase in Tariffs Government Institutions                                                  | Water network charge | R68-05  | R70-43  | R119-31 | R125-16 | R132-55 |
|                                                                                                 | From first KI        | R25-22  | R26-10  | R27-65  | R29-27  | R31-00  |
| 5% Increase in Tariffs Sport Clubs                                                              | Water network charge | R64-87  | R67-14  | R70-36  | R73-81  | R78-16  |
|                                                                                                 | From first KI        | R24-05  | R24-89  | R26-08  | R27-36  | R28-98  |
| 10% Increase in Tariffs Residential and Agricultural Residential (Level 1)                      | Water network charge | R64-87  | R67-14  | R70-16  | R75-07  | R79-50  |
|                                                                                                 | 0 – 6 KI             | R5-53   | R5-73   | R5-99   | R6-62   | R7-08   |
|                                                                                                 | 7 – 10 KI            | R9-50   | R9-84   | R10-27  | R10-99  | R11-64  |
|                                                                                                 | 11 – 15 KI           | R18-19  | R18-83  | R19-68  | R20-85  | R22-08  |
|                                                                                                 | 16 – 20 KI           | R23-07  | R23-87  | R25-28  | R26-77  | R28-36  |
|                                                                                                 | 21 – 25 KI           | R34-20  | R35-40  | R37-49  | R39-70  | R41-65  |
|                                                                                                 | 26 – 35 KI           | R71-26  | R52-73  | R55-85  | R59-15  | R62-63  |
|                                                                                                 | 36 kl and above      | R98-34  | R98-34  | R104-14 | R110-29 | R116-80 |
| 10% Increase in Tariffs Businesses / Commercial / Industrial / Business Agricultural (Level 1)  | Water network charge | R110-00 | R113-85 | R119-31 | R125-16 | R132-55 |
|                                                                                                 | From first KI        | R23-76  | R24-59  | R25-77  | R27-04  | R28-63  |
| 10% Increase in Tariffs Industrial (Level 1)                                                    | Water network charge | -       | -       | -       | -       | R160-00 |
|                                                                                                 | From first KI        | -       | -       | -       | R27-04  | R28-63  |
| 10% Increase in Tariffs Schools (Level 1)                                                       | Water network charge | R68-05  | R70-43  | R73-81  | R77-43  | R82-00  |
|                                                                                                 | From first KI        | R26-42  | R27-35  | R28-96  | R15-19  | R16-08  |
| 10% Increase in Tariffs Government Institutions (Level 1)                                       | Water network charge | R68-05  | R70-43  | R119-31 | R125-16 | R132-55 |
|                                                                                                 | From first KI        | R26-42  | R27-35  | R28-96  | R30-67  | R32-48  |
| 10% Increase in Tariffs Sport Clubs (Level 1)                                                   | Water network charge | R64-87  | R67-14  | R70-36  | R73-81  | R78-16  |
|                                                                                                 | From first KI        | R25-19  | R26-07  | R27-32  | R28-67  | R30-36  |
| 15% Increase in Tariffs Residential and Agricultural Residential (Level 1B)                     | Water network charge | R64-87  | R67-14  | R70-16  | R75-07  | R79-50  |
|                                                                                                 | 0 – 6 KI             | R6-07   | R6-28   | R6-26   | R6-92   | R7-41   |
|                                                                                                 | 7 – 10 KI            | R10-42  | R10-79  | R10-74  | R11-49  | R12-17  |
|                                                                                                 | 11 – 15 KI           | R19-02  | R19-69  | R20-57  | R21-79  | R23-08  |
|                                                                                                 | 16 – 20 KI           | R24-12  | R24-96  | R26-43  | R27-99  | R29-65  |
|                                                                                                 | 21 – 25 KI           | R35-75  | R37-00  | R39-19  | R41-50  | R43-54  |
|                                                                                                 | 26 – 35 KI           | R74-50  | R55-13  | R58-39  | R61-84  | R65-48  |
|                                                                                                 | 36 kl and above      | R102-81 | R106-41 | R108-87 | R115-30 | R122-11 |
| 15% Increase in Tariffs Businesses / Commercial / Industrial / Business Agricultural (Level 1B) | Water network charge | R110-00 | R113-85 | R119-31 | R125-16 | R132-55 |
|                                                                                                 | From first KI        | R26-06  | R26-97  | R26-94  | R28-27  | R29-93  |
| 15% Increase in Tariffs Industrial (Level 1B)                                                   | Water network charge | -       | -       | -       | -       | R160-00 |
|                                                                                                 | From first KI        | -       | -       | -       | R28-27  | R29-93  |
| 15% Increase in Tariffs Schools (Level 1B)                                                      | Water network charge | R68-05  | R70-43  | R73-81  | R77-43  | R82-00  |
|                                                                                                 | From first KI        | R27-62  | R28-59  | R30-28  | R15-88  | R16-81  |
| 15% Increase in Tariffs Government Institutions (Level 1B)                                      | Water network charge | R68-05  | R70-43  | R119-31 | R125-16 | R132-55 |
|                                                                                                 | From first KI        | R27-62  | R28-59  | R30-28  | R32-06  | R33-95  |
| 15% Increase in Tariffs Sport Clubs (Level 1B)                                                  | Water network charge | R64-87  | R67-14  | R70-37  | R73-81  | R78-16  |
|                                                                                                 | From first KI        | R27-63  | R28-60  | R28-57  | R29-97  | R31-74  |
| 20% Increase in Tariffs Residential and Agricultural Residential (Level 2)                      | Water network charge | R64-87  | R67-14  | R70-16  | R75-07  | R79-50  |
|                                                                                                 | 0 – 6 KI             | R6-33   | R6-55   | R6-53   | R7-22   | R7-73   |
|                                                                                                 | 7 – 10 KI            | R10-88  | R11-26  | R11-21  | R11-99  | R12-70  |
|                                                                                                 | 11 – 15 KI           | R19-85  | R20-54  | R21-47  | R22-74  | R24-08  |
|                                                                                                 | 16 – 20 KI           | R25-16  | R26-04  | R27-57  | R29-21  | R30-94  |
|                                                                                                 | 21 – 25 KI           | R37-31  | R38-61  | R40-90  | R43-31  | R45-43  |
|                                                                                                 | 26 – 35 KI           | R77-74  | R57-53  | R60-92  | R64-52  | R68-33  |
|                                                                                                 | 36 kl and above      | R107-28 | R111-03 | R113-60 | R120-32 | R127-42 |
| 20% Increase in Tariffs Businesses /                                                            | Water network charge | R110-00 | R113-85 | R119-31 | R125-16 | R132-55 |

| Table C.3.1: Water tariffs for 2024/2025 and the previous four financial years |                      |           |           |           |           |           |
|--------------------------------------------------------------------------------|----------------------|-----------|-----------|-----------|-----------|-----------|
| Consumer/Description                                                           | Category             | 20/21     | 21/22     | 22/23     | 23/24     | 24/25     |
| Commercial / Industrial / Business Agricultural (Level 2)                      | From first KI        | R27-19    | R28-14    | R28-12    | R29-50    | R31-24    |
| 20% Increase in Tariffs Industrial (Level 2)                                   | Water network charge | -         | -         | -         | -         | R160-00   |
|                                                                                | From first KI        | -         | -         | -         | R29-50    | R31-24    |
| 20% Increase in Tariffs Schools (Level 2)                                      | Water network charge | R68-05    | R70-43    | R73-81    | R77-43    | R82-00    |
|                                                                                | From first KI        | R28-82    | R29-83    | R31-60    | R16-57    | R17-54    |
| 20% Increase in Tariffs Government Institutions (Level 2)                      | Water network charge | R68-05    | R70-43    | R119-31   | R125-16   | R132-55   |
|                                                                                | From first KI        | R28-82    | R29-83    | R31-60    | R33-46    | R35-43    |
| 20% Increase in Tariffs Sport Clubs (Level 2)                                  | Water network charge | R64-87    | R67-14    | R70-36    | R73-81    | R78-16    |
|                                                                                | From first KI        | R28-83    | R29-84    | R29-81    | R31-27    | R33-12    |
| Connection Low Cost                                                            | Contract             | Contract  | Contract  | Contract  | Contract  | Contract  |
| Connection (15mm)                                                              |                      | R5 459-13 | R5 986-09 | R5 913-04 | R6 200-00 | R6 790-43 |
| Connection (22mm)                                                              |                      | R6 469-57 | R6 676-52 | R8 260-87 | R8 260-87 | R8 364-35 |
| Connection 22mm Private Developments                                           |                      | R4 460-87 | R4 636-52 | R4 469-57 | R4 843-48 | R5 341-74 |
| Deposit Payable: Letting of Municipal Standpipe                                |                      | R6 521-74 | R7 500-00 | R7 500-00 | R7 500-00 | R7 500-00 |
| Test of water meter – Refundable if result is faulty                           |                      | R782-61   | R782-61   | R826-09   | R869-57   | R917-39   |

Note: 25% Increase in Tariffs (Level 2B), 30% Increase in Tariffs (Level 3), 35% Increase in Tariffs (Level 3B), 40% Increase in Tariffs (Level 4), 50% Increase in Tariffs (Level 5), 60% Increase in Tariffs (Level 6), 70% Increase in Tariffs (Level 7) and 80% Increase in Tariffs (Level 8) are also in place.

The sewerage tariff structures for Swartland Municipality for the 2024/2025 financial year and the previous four financial years are summarised in the table below (Subject to 15% VAT).

| Table C.3.2: Sewerage tariffs for 2024/2025 and the previous four financial years |                                                                                                      |                     |                     |                     |                     |                     |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Consumer/Description                                                              | Category                                                                                             | 20/21               | 21/22               | 22/23               | 23/24               | 24/25               |
| Basic Network Charge                                                              | Sewerage connection / pumping service                                                                | -                   | R105-10             | -                   | -                   | -                   |
| Households, Flats, Semi-detached households                                       | Availability Fees per month                                                                          | R234-35             | R143-08             | R262-82             | R278-33             | R294-75             |
| Businesses, Industrial, Schools, Churches, Sport Facilities, etc.                 | Availability Fees per month                                                                          | R234-35             | R143-08             | R262-82             | R278-33             | R294-75             |
| For each additional toilet                                                        | per month                                                                                            | R36-87              | R39-08              | R41-04              | R43-47              | R46-03              |
| Sewer connections                                                                 | 100mm PVC                                                                                            | R4 789-57           | R5 024-35           | R5 732-82           | R6 852-17           | R7 287-83           |
| Sewer connections                                                                 | 150mm PVC                                                                                            | R6 673-04           | R6 525-22           | R6 663-18           | R7 800-00           | R8 267-83           |
| Sewer blockages                                                                   | Office hours (Mid and main line blockages excluded)                                                  | R524-35             | R556-52             | R560-06             | R643-48             | R716-52             |
| Sewer blockages                                                                   | After hours and public holidays                                                                      | R743-48             | R789-57             | R795-05             | R913-04             | R1 021-74           |
| Emptying of tanks                                                                 | For two emptying per month                                                                           | R234-35             | R143-08             | R303-91             | R347-83             | R378-26             |
|                                                                                   | Every additional emptying                                                                            | R858-43             | R909-94             | R1 149-10           | R1 304-35           | R1 408-70           |
|                                                                                   | 3 <sup>rd</sup> pumping during Easter Weekend and school holidays in the same month will be charged. | R858-43             | R909-94             | R1 149-10           | R1 304-35           | R1 408-70           |
| Emptying of tanks (Riebeeck Kasteel and Abbotdale)                                | From the 1 <sup>st</sup> sewerage pumping                                                            | R858-43             | R909-94             | R1 149-10           | R1 304-35           | R1 408-70           |
|                                                                                   | Plus fixed sewerage pan levy (Owner do not connect to the new waterborne system)                     | R266-00 (VAT incl.) | R285-41 (VAT incl.) | R302-24 (VAT incl.) | R320-08 (VAT incl.) | R435-00 (VAT incl.) |
| Ad-hoc emptying of tanks                                                          | After hours                                                                                          | R1 081-91           | R1 137-39           | R1 252-17           | R1 391-30           | R1 478-26           |
| Treated Waste Water                                                               | Per KI                                                                                               | R2-96               | R3-13               | R3-30               | R3-56               | R4-14               |
| Treated Waste Water Rooiheuvel JV                                                 | Per KI                                                                                               | R0-81               | R0-86               | R0-90               | R0-96               | R1-04               |
| Partially connection (Emptying)                                                   |                                                                                                      | R125-98             | R52-61              | R131-41             | R139-13             | R147-83             |
| Industrial effluent per KI (COD)                                                  |                                                                                                      | R11-27              | R11-95              | R12-52              | R13-30              | R14-17              |
| Industrial effluent per KI (COD) FOG 200 mg/l – 300 mg/l                          |                                                                                                      | -                   | -                   | -                   | -                   | R15-59              |
| Industrial effluent per KI (COD) FOG 300 mg/l – 400 mg/l                          |                                                                                                      | -                   | -                   | -                   | -                   | R16-30              |
| Industrial effluent per KI (COD) FOG > 400 mg/l                                   |                                                                                                      | -                   | -                   | -                   | -                   | R17-00              |
| Grotto Baai and Jakkelsfontein – Network Charge                                   |                                                                                                      | -                   | R105-10             | -                   | -                   | -                   |

| Table C.3.2: Sewerage tariffs for 2024/2025 and the previous four financial years |          |           |           |           |           |           |
|-----------------------------------------------------------------------------------|----------|-----------|-----------|-----------|-----------|-----------|
| Consumer/Description                                                              | Category | 20/21     | 21/22     | 22/23     | 23/24     | 24/25     |
| Grotto Baai and Jakkelsfontein for two emptying per month                         |          | R234-35   | R143-08   | R303-91   | R347-83   | R378-26   |
| Partial connection (pumping) sewerage tanks for two emptying per month.           |          | -         | R71-60    | R303-91   | R330-43   | R365-22   |
| Rural and Non-urban areas – emptying of sewerage tanks per pumping                |          | R1 545-22 | R1 619-13 | R1 630-85 | R1 956-52 | R2 208-70 |

### C.3.2. Metering, Billing and Free Basic Services

The table below gives an overview of the metering, billing and free basic services of Swartland Municipality.

| Table C.3.2.1: Overview of Metering, Billing and Free Basic Services |                                                              |           |               |               |               |
|----------------------------------------------------------------------|--------------------------------------------------------------|-----------|---------------|---------------|---------------|
| Regulations Ref. #                                                   | Description                                                  | Unit      | Year 0        | Year - 1      | Year - 2      |
|                                                                      |                                                              |           | FY2024/25     | FY2023/24     | FY2022/23     |
|                                                                      | <b>UNITS SUPPLIED (as per water services access profile)</b> |           |               |               |               |
| 10.2 (b) (i)                                                         | Household water connections (house and yard connections)     | Nr        | 49 627        | 47 688        | 45 826        |
| 10.2 (b) (iv)                                                        | Household sewerage connections                               | Nr        | 48 263        | 46 324        | 44 462        |
|                                                                      | <b>METERING</b>                                              |           |               |               |               |
|                                                                      | Metered Water Connections (aligned with Table C2.1)          |           |               |               |               |
|                                                                      | Residential                                                  | Nr        | 22 075        | 21 873        | 21 596        |
|                                                                      | Commercial / Business                                        | Nr        | 885           | 859           | 845           |
|                                                                      | Industrial                                                   | Nr        | 9             | 9             | 9             |
|                                                                      | Government / Institutional                                   | Nr        | 74            | 72            | 72            |
|                                                                      | Other                                                        | Nr        | 638           | 636           | 646           |
|                                                                      | <b>Sub-Total: Metered Water Connections</b>                  | <b>Nr</b> | <b>23 681</b> | <b>23 449</b> | <b>23 168</b> |
|                                                                      | Proportion of metered connections (residential)*             | %         | 44%           | 46%           | 47%           |
|                                                                      | Total number of meters                                       | Nr        | 23 681        | 23 449        | 23 168        |
| 10.2 (b) (vi)                                                        | Total number of new connections (aligned with Table C.2.1)   | Nr        | 232           | 281           | 680           |
| 10.2 (e) (i)                                                         | Total number of new meters installed                         | Nr        | 232           | 281           | 680           |
|                                                                      | Proportion of new connections, metered                       | %         | 100.0%        | 100.0%        | 100.0%        |
|                                                                      | Number of meters tested                                      | Nr        | 0             | 0             | 0             |
| 10.2 (e) (ii)                                                        | Proportion of meters tested to total number of meters        | %         | 0.0%          | 0.0%          | 0.0%          |
|                                                                      | Number of meters replaced**                                  | Nr        | 186           | 598           | 224           |
| 10.2 (e) (ii)                                                        | Proportion of meters replaced to total number of meters      | %         | 0.8%          | 2.6%          | 1.0%          |
|                                                                      | <b>BILLING</b>                                               |           |               |               |               |
|                                                                      | Customer billing (water and sewerage)                        |           | <b>Nr</b>     | <b>Nr</b>     | <b>Nr</b>     |
|                                                                      | Residential                                                  | Nr        | 22 075        | 21 873        | 21 596        |
|                                                                      | Commercial / Business                                        | Nr        | 885           | 859           | 845           |
|                                                                      | Industrial                                                   | Nr        | 9             | 9             | 9             |
|                                                                      | Government / Institutional                                   | Nr        | 74            | 72            | 72            |
|                                                                      | etc.                                                         |           | 638           | 636           | 646           |
|                                                                      | <b>Sub-Total: Customers billed</b>                           | <b>Nr</b> | <b>23 681</b> | <b>23 449</b> | <b>23 168</b> |
|                                                                      | Proportion of bills to metered connections                   | %         | 100%          | 100%          | 100%          |
|                                                                      | Residential                                                  | %         | 100%          | 100%          | 100%          |
|                                                                      | Commercial / Business                                        | %         | 100%          | 100%          | 100%          |
|                                                                      | Industrial                                                   | %         | 100%          | 100%          | 100%          |
|                                                                      | Government / Institutional                                   | %         | 100%          | 100%          | 100%          |
|                                                                      | etc.                                                         | %         | 100%          | 100%          | 100%          |
|                                                                      | <b>FREE BASIC SERVICES</b>                                   |           |               |               |               |
|                                                                      | Nr customers receiving:                                      |           |               |               |               |
|                                                                      | Free Basic Water                                             | Nr        | 8 597         | 8 966         | 9 205         |
| 10.2 (b) (v)                                                         | Free Basic Sanitation                                        | Nr        | 8 209         | 8 650         | 9 205         |
|                                                                      | Proportion of Free Basic Services                            |           |               |               |               |
|                                                                      | Water                                                        | %         | 39%           | 41%           | 43%           |
|                                                                      | Sewerage                                                     | %         | 17%           | 19%           | 21%           |

### C.3.3. Revenue Collection and Cost Recovery

The table and figures below give an overview of Swartland Municipality's water services revenue collection and cost recovery.

| <b>Table C.3.3.1: Overview of Water Services Revenue Collection and Cost Recovery</b> |                                          |                  |                  |                  |
|---------------------------------------------------------------------------------------|------------------------------------------|------------------|------------------|------------------|
| Regulations<br>Ref. #                                                                 | Description                              | Year 0           | Year - 1         | Year - 2         |
|                                                                                       |                                          | FY2024/25        | FY2023/24        | FY2022/23        |
|                                                                                       | <b>INCOME</b>                            | <b>R'000</b>     | <b>R'000</b>     | <b>R'000</b>     |
|                                                                                       | <b>Billed</b>                            |                  |                  |                  |
|                                                                                       | Water reticulation / provision           | R 110 505        | R 116 151        | R 110 054        |
|                                                                                       | Sewerage / wastewater                    | R 76 695         | R 71 315         | R 55 272         |
|                                                                                       | <b>Sub-Total: Billed</b>                 | <b>R 187 200</b> | <b>R 187 466</b> | <b>R 165 326</b> |
|                                                                                       | <b>Collections</b>                       |                  |                  |                  |
|                                                                                       | Water reticulation / provision           | R 121 369        | R 116 504        | R 110 248        |
|                                                                                       | Sewerage / wastewater                    | R 103 136        | R 93 065         | R 77 838         |
|                                                                                       | <b>Sub-Total: Collections</b>            | <b>R 224 506</b> | <b>R 209 569</b> | <b>R 188 086</b> |
|                                                                                       | <b>Equitable share income</b>            |                  |                  |                  |
|                                                                                       | Water reticulation / provision           | R 14 284         | R 13 585         | R 13 890         |
|                                                                                       | Sewerage / wastewater                    | R 29 369         | R 28 820         | R 28 425         |
|                                                                                       | <b>Sub-Total: Equitable share income</b> | <b>R 43 652</b>  | <b>R 42 406</b>  | <b>R 42 314</b>  |
|                                                                                       | <b>EXPENDITURE (O&amp;M)</b>             | <b>R'000</b>     | <b>R'000</b>     | <b>R'000</b>     |
|                                                                                       | Water services                           | R 98 687         | R 92 440         | R 86 616         |
|                                                                                       | Sewerage / wastewater services           | R 67 971         | R 66 082         | R 56 390         |
|                                                                                       | <b>Total: Water Services O&amp;M</b>     | <b>R 166 658</b> | <b>R 158 522</b> | <b>R 143 005</b> |
|                                                                                       | <b>COST RECOVERY ANALYSIS / RATIO'S</b>  | <b>%</b>         | <b>%</b>         | <b>%</b>         |
| 10.2 (d) (ii)                                                                         | <b>Billed as % of Cost</b>               |                  |                  |                  |
|                                                                                       | Water                                    | 126%             | 140%             | 143%             |
|                                                                                       | Sewerage                                 | 156%             | 152%             | 148%             |
|                                                                                       | <b>Total</b>                             | <b>139%</b>      | <b>145%</b>      | <b>145%</b>      |
| 10.2 (d) (iii)                                                                        | <b>Unrecovered as % of Cost</b>          |                  |                  |                  |
|                                                                                       | Water services                           | 3%               | 14%              | 16%              |
|                                                                                       | Sewerage / wastewater services           | 4%               | 11%              | 10%              |
|                                                                                       | <b>Total</b>                             | <b>4%</b>        | <b>13%</b>       | <b>14%</b>       |



The figure below gives an overview of the revenue collection and cost recovery profile for water services for Swartland Municipality.

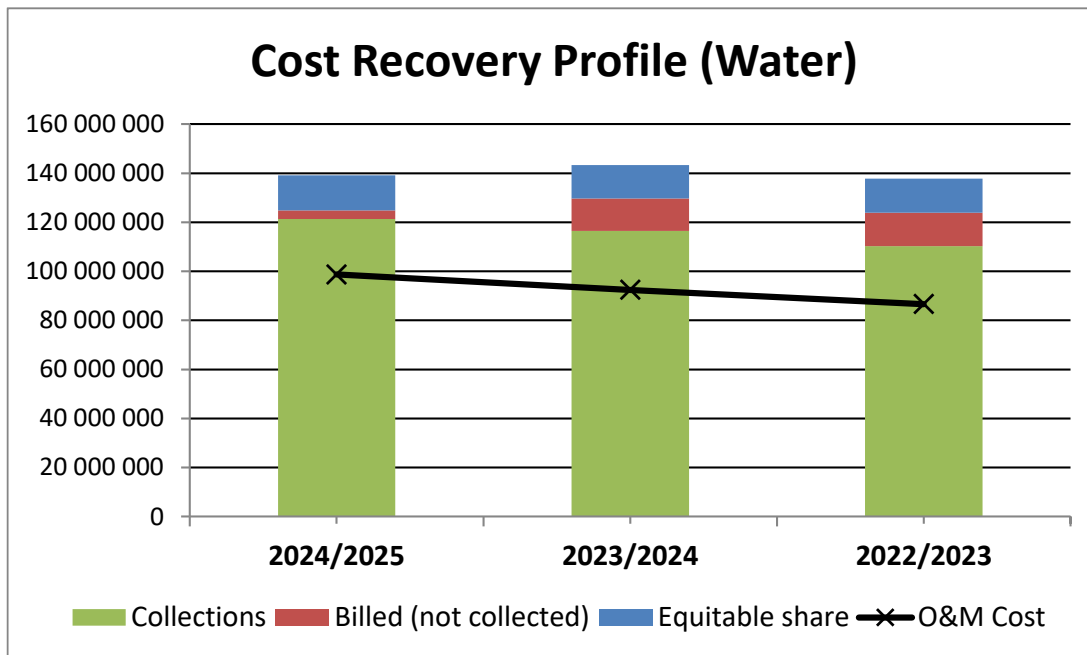


Figure C.3.3.1: Revenue collection and cost recovery profile (Water)

The figure below gives an overview of the revenue collection and cost recovery profile for wastewater services for Swartland Municipality.

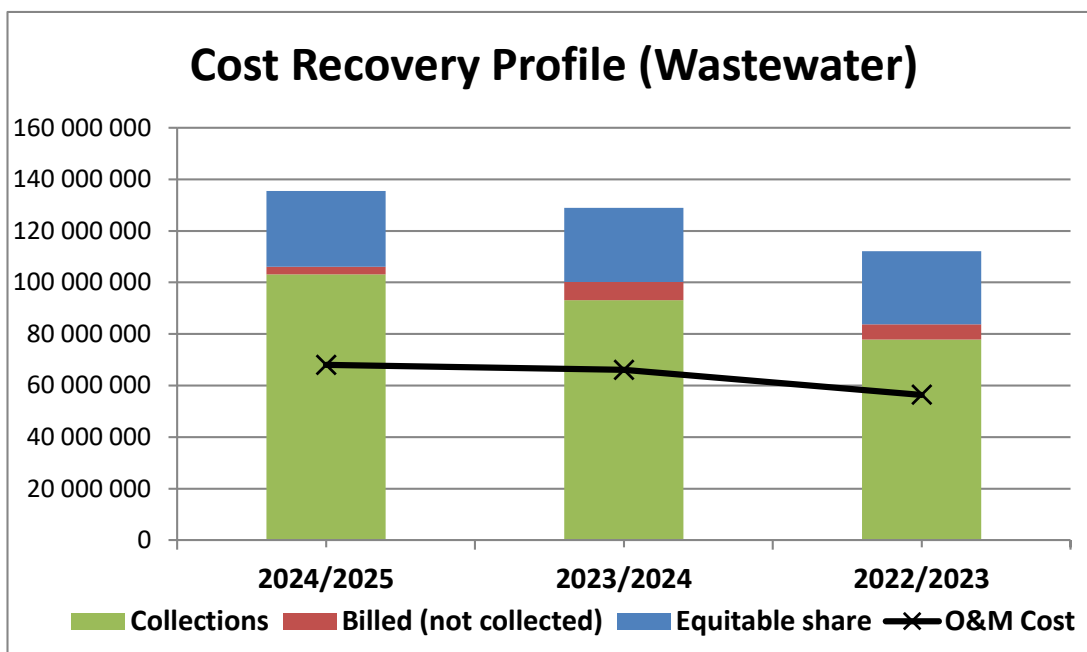


Figure C.3.3.2: Revenue collection and cost recovery profile (Wastewater)

Swartland Municipality's O&M Budget for water services for the last seven financial years are summarised in the table below (Unaudited). A more detailed breakdown of the water O&M expenditure and income budgets are also included in Annexure F.

| Table C.3.3.2: Operational and Maintenance expenditure and income for water services |               |               |               |              |              |               |              |
|--------------------------------------------------------------------------------------|---------------|---------------|---------------|--------------|--------------|---------------|--------------|
| Description                                                                          | Actual 24/25  | Record: Prior |               |              |              |               |              |
|                                                                                      |               | Actual 23/24  | Actual 22/23  | Actual 21/22 | Actual 20/21 | Actual 19/20  | Actual 18/19 |
| EXPENDITURE                                                                          |               |               |               |              |              |               |              |
| Wages and Salaries                                                                   | R22 316 844   | R21 301 060   | R19 267 099   | R18 280 445  | R14 087 315  | R13 729 548   | R11 721 909  |
| Social Contributions                                                                 | R3 422 616    | R3 204 155    | R2 924 612    | R2 784 942   | R2 462 631   | R2 292 675    | R2 035 437   |
| Bad Debts                                                                            | R3 078 464    | R1 338 002    | R924 286      | R2 096 897   | R0           | R6 462 307    | R0           |
| Depreciation: Property, plant and equipment                                          | R17 227 074   | R17 035 022   | R16 260 078   | R15 396 207  | R14 639 011  | R14 437 698   | R0           |
| Repairs and Maintenance                                                              | R1 418 186    | R2 067 055    | R1 860 174    | R1 630 875   | R1 021 131   | R1 369 954    | R1 341 566   |
| Interest Expense                                                                     | R36 237       | R62 909       | R87 121       | R197 429     | R387 675     | R959 499      | R1 552 598   |
| General Expenses: Bulk Purchases                                                     | R0            | R0            | R598 233      | R0           | R0           | R0            | R0           |
| General Expenses: Departmental                                                       | R0            | R0            | R0            | R1 599 615   | R1 453 743   | R1 522 537    | R742 701     |
| Inter Departmental Recoveries                                                        | R628 136      | R577 638      | R540 553      | R608 080     | R0           | R431 913      | R304 742     |
| General Expenses: Other                                                              | R50 707 599   | R46 305 045   | R43 705 732   | R36 800 382  | R10 903 926  | R20 095 768   | R5 388 964   |
| Loss on Disposal of Assets                                                           | -R148 100     | R548 662      | R447 838      | R389 820     | R0           | R0            | R0           |
| Expenditure Total                                                                    | R98 687 056   | R92 439 548   | R86 615 726   | R79 784 692  | R44 955 432  | R61 301 899   | R23 087 917  |
| INCOME                                                                               |               |               |               |              |              |               |              |
| Service Charges                                                                      | -R96 682 405  | -R93 693 045  | -R83 195 597  | -R78 150 261 | -R72 183 322 | -R71 489 657  | -R60 146 111 |
| Grants and Subsidies received: Operating                                             | -R331 200     | -R267 361     | -R600 000     | R0           | -R141 591    | -R123 760     | R0           |
| Unconditional and Other Grants                                                       | -R15 850 230  | -R14 953 047  | -R14 804 997  | -R14 659 002 | -R16 770 715 | -R14 874 317  | -R16 009 462 |
| Grants and Subsidies received: Capital                                               | -R7 612 810   | -R5 504 744   | -R21 359 212  | -R350 000    | R0           | -R16 367 200  | R0           |
| Other Revenue                                                                        | -R4 312 008   | -R15 318 455  | -R3 983 806   | -R5 900 953  | -R4 145 841  | -R3 350 599   | -R3 471 200  |
| Unconditional and Other Grants                                                       | R0            | R0            | R0            | -R22 000     |              |               |              |
| Less Revenue Foregone                                                                | R0            | R0            | R0            | -R290        | R3 009 706   | R0            | R0           |
| Income Total                                                                         | -R124 788 653 | -R129 736 652 | -R123 943 612 | -R99 081 926 | -R90 231 763 | -R106 205 533 | -R79 626 773 |
| Nett Surplus / Deficit                                                               | -R26 101 597  | -R37 297 104  | -R37 327 886  | -R19 297 234 | -R45 276 331 | -R44 903 634  | -R56 538 856 |

Swartland Municipality's O&M Budget for sanitation services for the last seven financial years are summarised in the table below (Unaudited). A more detail breakdown of the sanitation O&M expenditure and income budgets are also included in Annexure F.

| Table C.3.3.3: Operational and Maintenance expenditure and income for sanitation services |               |               |              |              |              |              |              |
|-------------------------------------------------------------------------------------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Description                                                                               | Actual 24/25  | Record: Prior |              |              |              |              |              |
|                                                                                           |               | Actual 23/24  | Actual 22/23 | Actual 21/22 | Actual 20/21 | Actual 19/20 | Actual 18/19 |
| EXPENDITURE                                                                               |               |               |              |              |              |              |              |
| Wages and Salaries                                                                        | R12 468 064   | R11 844 139   | R10 946 800  | R9 684 345   | R8 189 332   | R7 934 618   | R6 882 200   |
| Social Contributions                                                                      | R1 938 037    | R1 876 670    | R1 692 442   | R1 527 960   | R1 483 313   | R1 403 886   | R1 308 109   |
| Bad Debts                                                                                 | R120 942      | R916 222      | R475 436     | R1 280 373   | R0           | R0           | R0           |
| Depreciation: Property, plant and equipment                                               | R26 048 216   | R20 366 214   | R16 414 351  | R16 317 745  | R16 092 587  | R16 134 374  | R0           |
| Gains and Losses: Impairment Loss: Property, plant and equipment                          | -             | -R817 913     | -            | -            | -            | -            | -            |
| Repairs and Maintenance                                                                   | R7 305 047    | R6 708 497    | R5 209 746   | R6 019 299   | R4 383 979   | R3 915 063   | R3 097 134   |
| Interest Expense: External Borrowings                                                     | R2 713 792    | R5 512 544    | R8 557 112   | R9 128 835   | R9 642 519   | R10 127 577  | R10 518 757  |
| General Expenses: Bulk Purchases Electricity                                              | R0            | R0            | R0           | R0           | R0           | R0           | R0           |
| General Expenses: Departmental                                                            | R0            | R0            | R0           | R724 862     | R353 591-00  | R689 934     | R336 553     |
| Interdepartmental Recoveries                                                              | R9 144 861    | R8 179 999    | R5 715 033   | R6 040 607   | R5 259 223   | R5 337 182   | R4 950 888   |
| General Expenses: Other                                                                   | R7 562 545    | R9 636 321    | R7 331 479   | R5 654 712   | R5 212 322   | R4 274 688   | R4 594 890   |
| Loss on Disposal of Assets                                                                | R669 674      | R1 859 709    | R47 164      | R173 418     | R0           | R0           | R0           |
| Nett Expenditure                                                                          | R67 971 178   | R66 082 402   | R56 389 563  | R56 552 156  | R50 616 866  | R49 817 322  | R31 688 531  |
| INCOME                                                                                    |               |               |              |              |              |              |              |
| Service Charges                                                                           | -R57 188 489  | -R51 544 302  | -R45 782 452 | -R42 148 282 | -R35 856 914 | -R45 674 849 | -R35 200 087 |
| Grants and Subsidies Received Operational                                                 | R0            | -R3 133 832   | -R55 200     | -R41 400     | -R38 511     | -R53 040     | R0           |
| Unconditional and Other grants                                                            | -R32 769 900  | -R30 626 075  | -R28 622 500 | -R26 750 000 | -R25 641 135 | -R23 454 400 | -R22 769 691 |
| Grants and Subsidies Received Capital                                                     | -R4 171 418   | R0            | -R2 438 483  | -R18 877 474 | -R20 156 251 | -R4 933 800  | R0           |
| Transfer Revenue                                                                          | R0            | R0            | R0           | R0           | R0           | R0           | R0           |
| Other Revenue                                                                             | -R11 442 054  | -R14 830 637  | -R6 798 368  | -R6 985 250  | -R6 132 354  | -R5 806 902  | -R4 978 781  |
| Less Revenue Foregone                                                                     | -R491 996     | R0            | R0           | R0           | R0           | -R2 344      | -R218        |
| Reversal of Impairment Loss                                                               | R0            | R0            | R0           | R0           | R0           | R8 851 286   | R0           |
| Income Total                                                                              | -R106 063 857 | -R100 134 846 | -R83 697 003 | -R94 802 406 | -R87 825 165 | -R71 074 049 | -R62 948 777 |
| Nett Surplus / Deficit                                                                    | -R38 092 679  | -R34 052 444  | -R27 307 440 | -R38 250 250 | -R37 208 299 | -R21 256 727 | -R31 260 246 |

The table below gives an overview of the analysis of the consumer debtors' age in days for the last five financial years as on the 30<sup>th</sup> of June.

| Table C.3.3.4: Analysis of Consumer Debtors age in days as on the 30 <sup>th</sup> of June |                     |                     |                    |                   |                   |                    |
|--------------------------------------------------------------------------------------------|---------------------|---------------------|--------------------|-------------------|-------------------|--------------------|
| Service                                                                                    | Total               | Current 0-30 Days   | 31 – 60 Days       | 61 – 90 Days      | 91 – 120 Days     | 120+ Days          |
| <b>2024/2025</b>                                                                           |                     |                     |                    |                   |                   |                    |
| Electricity                                                                                | R71 034 589         | R64 755 339         | R4 244 052         | R177 767          | R65 923           | R1 791 508         |
| Water                                                                                      | R29 157 693         | R12 620 100         | R3 259 638         | R1 194 400        | R990 861          | R11 092 694        |
| Sewerage                                                                                   | R12 321 895         | R4 353 282          | R1 605 464         | R450 016          | R367 824          | R5 545 309         |
| Refuse Removal                                                                             | R10 396 957         | R3 517 670          | R1 236 343         | R370 328          | R317 337          | R4 955 279         |
| Housing Rentals                                                                            | R133 057            | R60 777             | R23 550            | R3 473            | R2 276            | R42 981            |
| Other Debtors                                                                              | R17 835 815         | R14 777 886         | R306 755           | R91 314           | R72 696           | R2 587 164         |
| <b>Total</b>                                                                               | <b>R140 880 006</b> | <b>R100 085 054</b> | <b>R10 675 802</b> | <b>R2 287 298</b> | <b>R1 816 917</b> | <b>R26 014 935</b> |
| <b>2023/2024</b>                                                                           |                     |                     |                    |                   |                   |                    |
| Electricity                                                                                | R62 918 023         | R57 729 812         | R3 765 751         | R112 015          | R91 367           | R1 219 078         |
| Water                                                                                      | R30 948 149         | R17 252 494         | R2 532 179         | R1 127 809        | R765 484          | R9 270 183         |
| Sewerage                                                                                   | R10 801 360         | R4 038 994          | R1 332 742         | R368 556          | R313 375          | R4 747 693         |
| Refuse Removal                                                                             | R8 762 272          | R3 149 313          | R978 348           | R297 036          | R256 034          | R4 081 541         |
| Housing Rentals                                                                            | R103 216            | R35 099             | R20 688            | R4 304            | R1 962            | R41 163            |
| Other Debtors                                                                              | R17 465 682         | R14 735 333         | R328 312           | R89 802           | R74 716           | R2 237 519         |
| <b>Total</b>                                                                               | <b>R130 998 702</b> | <b>R96 941 045</b>  | <b>R8 958 020</b>  | <b>R1 999 522</b> | <b>R1 502 938</b> | <b>R21 597 177</b> |
| <b>2022/2023</b>                                                                           |                     |                     |                    |                   |                   |                    |
| Electricity                                                                                | R51 522 153         | R46 844 364         | R2 451 404         | R103 375          | R65 697           | R2 057 313         |
| Water                                                                                      | R27 757 495         | R15 466 664         | R1 972 776         | R673 661          | R583 584          | R9 060 810         |
| Sewerage                                                                                   | R10 831 638         | R3 897 653          | R1 207 966         | R364 306          | R307 444          | R5 054 269         |
| Refuse Removal                                                                             | R8 914 469          | R2 960 281          | R877 525           | R285 667          | R247 018          | R4 543 978         |
| Housing Rentals                                                                            | R87 436             | R34 357             | R18 672            | R2 061            | R1 815            | R30 531            |
| Other Debtors                                                                              | R4 447 366          | R2 368 472          | R215 491           | R106 524          | R119 904          | R1 636 975         |
| <b>Total</b>                                                                               | <b>R103 560 557</b> | <b>R71 571 791</b>  | <b>R6 743 834</b>  | <b>R1 535 594</b> | <b>R1 325 462</b> | <b>R22 383 876</b> |
| <b>2021/2022</b>                                                                           |                     |                     |                    |                   |                   |                    |
| Electricity                                                                                | R49 720 423         | R43 585 652         | R4 041 464         | R171 040          | R61 179           | R1 861 089         |
| Water                                                                                      | R24 583 765         | R13 314 376         | R2 887 002         | R682 515          | R690 304          | R7 009 568         |
| Sewerage                                                                                   | R9 771 010          | R3 894 606          | R1 175 653         | R335 443          | R269 701          | R4 095 606         |
| Refuse Removal                                                                             | R7 695 324          | R2 667 891          | R828 970           | R249 298          | R204 400          | R 3 744 764        |
| Housing Rentals                                                                            | R79 820             | R31 915             | R20 212            | R2 458            | R2 038            | R23 196            |
| Other Debtors                                                                              | R11 693 206         | R9 879 525          | R249 616           | R94 671           | R82 876           | R1 386 518         |
| <b>Total</b>                                                                               | <b>R103 543 548</b> | <b>R73 373 966</b>  | <b>R9 202 919</b>  | <b>R1 535 425</b> | <b>R1 310 498</b> | <b>R18 120 740</b> |
| <b>2020/2021</b>                                                                           |                     |                     |                    |                   |                   |                    |
| Electricity                                                                                | R45 169 248         | R39 450 816         | R3 002 076         | R222 638          | R251 079          | R2 242 639         |
| Water                                                                                      | R20 483 738         | R10 720 585         | R2 592 453         | R710 719          | R618 094          | R5 841 887         |
| Sewerage                                                                                   | R7 902 773          | R3 309 940          | R1 050 544         | R285 657          | R219 870          | R3 036 762         |
| Refuse Removal                                                                             | R6 699 622          | R2 495 606          | R783 030           | R229 113          | R182 834          | R3 009 039         |
| Housing Rentals                                                                            | R68 920             | R30 438             | R13 526            | R2 916            | R2 902            | R19 138            |
| Other Debtors                                                                              | R13 053 274         | R11 661 601         | R191 860           | R104 255          | R59 665           | R1 035 893         |
| <b>Total</b>                                                                               | <b>R93 377 575</b>  | <b>R67 668 986</b>  | <b>R7 633 489</b>  | <b>R1 555 298</b> | <b>R1 334 444</b> | <b>R15 185 358</b> |

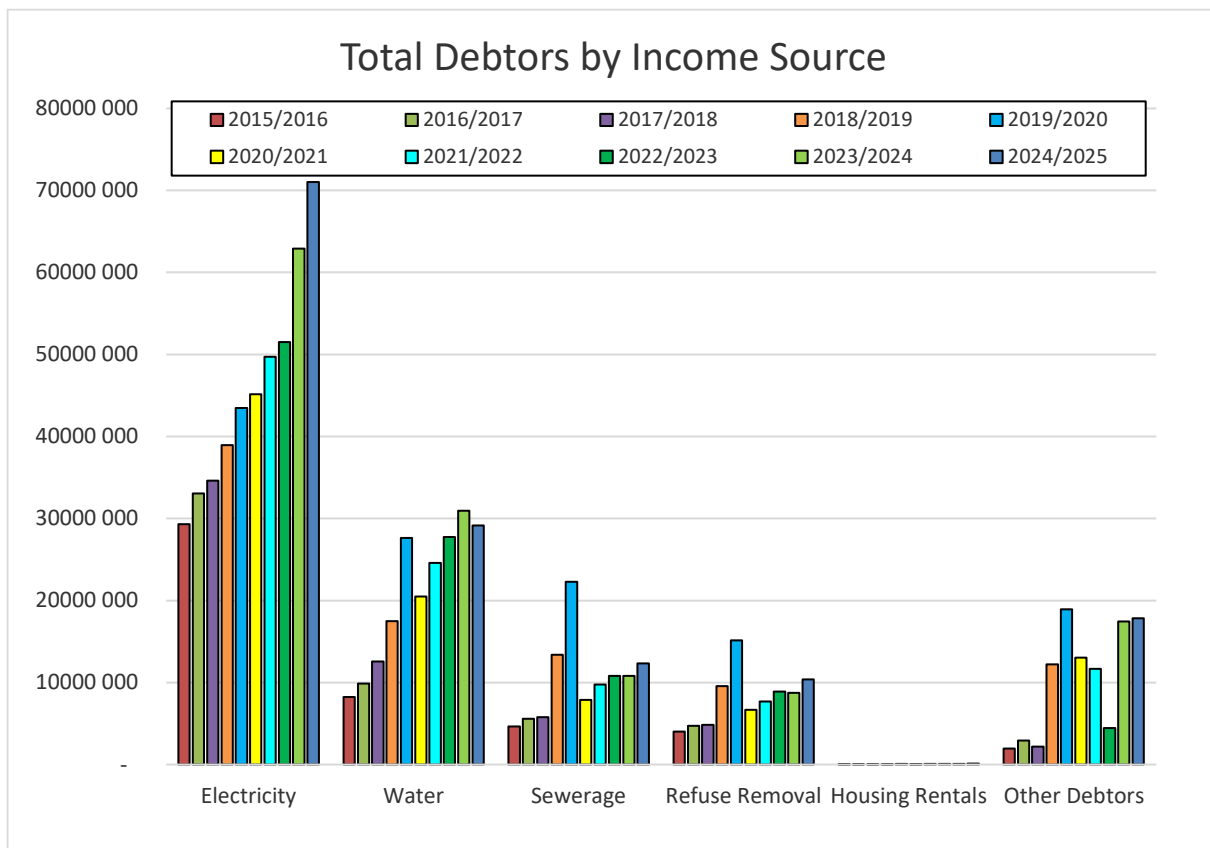


Figure C.3.3.3: Consumer Debtors by Income Source

## C.4. Water Quality

### C.4.1. Sampling Programme

Operational Sampling programmes are implemented by the West Coast District Municipality at their two bulk WTWs. Compliance Water Quality Monitoring Programmes are also implemented by the West Coast District Municipality and the Swartland Municipality throughout the internal water distribution systems. Operational and Compliance Wastewater Monitoring Programmes are also implemented by Swartland Municipality at their WWTWs.

The two tables below give an overview of the West Coast District Municipality's and Swartland Municipality's compliance sampling programmes for potable water quality, as compiled from the compliance sample results.

| Table C.4.1.1: Sampling Programme for Potable Water Quality (Bulk WTWs) |                        |                 |           |           |                                    |                  |           |           |
|-------------------------------------------------------------------------|------------------------|-----------------|-----------|-----------|------------------------------------|------------------|-----------|-----------|
| Treated Water Schemes: Withoogte and Swartland WTW Final                |                        |                 |           |           |                                    |                  |           |           |
| Registered Sites per Scheme                                             |                        | Active (yes/no) |           |           | Determinands per Category          | Frequency (days) |           |           |
|                                                                         |                        | Year 0          | Year-1    | Year-2    |                                    | Year 0           | Year-1    | Year-2    |
| #                                                                       | Name                   | FY2024/25       | FY2023/24 | FY2022/23 |                                    | FY2024/25        | FY2023/24 | FY2022/23 |
| 33687                                                                   | Withoogte Final (WCDM) | Yes             | Yes       | Yes       | <b>Microbiological (Health)</b>    |                  |           |           |
| 32210                                                                   | Swartland Final (WCDM) | Yes             | Yes       | Yes       | E.Coli (Count per 100 ml)          | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           |                                    |                  |           |           |
|                                                                         |                        |                 |           |           | <b>Aesthetic</b>                   |                  |           |           |
|                                                                         |                        |                 |           |           | Conductivity at 25°C (mS/m)        | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Colour (mg/l)                      | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Total Dissolved Solids (mg/l)      | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Chloride as Cl <sup>-</sup> (mg/l) | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Iron as Fe (ug/l)                  | 30               | 30        | 60        |
|                                                                         |                        |                 |           |           | Manganese as Mn (ug/l)             | 30               | 30        | 60        |
|                                                                         |                        |                 |           |           |                                    |                  |           |           |
|                                                                         |                        |                 |           |           | <b>Operational</b>                 |                  |           |           |
|                                                                         |                        |                 |           |           | pH at 25°C                         | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Turbidity NTU                      | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Total Coliforms count per 100ml    | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           | Heterotrophic Plate Count per 1 ml | 15               | 15        | 15        |
|                                                                         |                        |                 |           |           | Aluminium as Al (ug/l)             | 30               | 30        | 60        |
|                                                                         |                        |                 |           |           |                                    |                  |           |           |
|                                                                         |                        |                 |           |           | <b>Disinfectant Residual</b>       |                  |           |           |
|                                                                         |                        |                 |           |           | Free Chlorine                      | 7                | 7         | 7         |
|                                                                         |                        |                 |           |           |                                    |                  |           |           |
|                                                                         |                        |                 |           |           | <b>Not in STD / Limit Set</b>      |                  |           |           |
|                                                                         |                        |                 |           |           | Alkalinity (as CaCO <sub>3</sub> ) | 7                | 7         | -         |

| Table C.4.1.1: Sampling Programme for Potable Water Quality (Internal Water Reticulation Networks) |                                           |                 |           |           |                                    |                  |           |           |
|----------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------|-----------|-----------|------------------------------------|------------------|-----------|-----------|
| Treated Water Schemes: Distribution Networks                                                       |                                           |                 |           |           |                                    |                  |           |           |
| Registered Sites per Scheme                                                                        |                                           | Active (yes/no) |           |           | Determinands per Category          | Frequency (days) |           |           |
|                                                                                                    |                                           | Year 0          | Year-1    | Year-2    |                                    | Year 0           | Year-1    | Year-2    |
| #                                                                                                  | Name                                      | FY2024/25       | FY2023/24 | FY2022/23 |                                    | FY2024/25        | FY2023/24 | FY2022/23 |
| 33818                                                                                              | Yzerfontein (WCDM)                        | Yes             | Yes       | Yes       | <b>Microbiological (Health)</b>    |                  |           |           |
| 25274                                                                                              | Darling (WCDM)                            | Yes             | Yes       | Yes       | E.Coli (Count per 100 ml)          | 15               | 15        | 15        |
| 26627                                                                                              | Koringberg (WCDM)                         | Yes             | Yes       | Yes       |                                    |                  |           |           |
| 27846                                                                                              | Malmesbury (WCDM)                         | Yes             | Yes       | Yes       | <b>Aesthetic</b>                   |                  |           |           |
|                                                                                                    | Kasteelberg Reservoir (WCDM)              | Yes             | Yes       | Yes       | Conductivity at 25°C (mS/m)        | 15               | 15        | 15        |
|                                                                                                    | Abbotsdale School                         | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Kalbaskraal Shopping Center               | Yes             | Yes       | Yes       | <b>Operational</b>                 |                  |           |           |
|                                                                                                    | Riverlands Primary School                 | Yes             | Yes       | Yes       | pH at 25°C                         | 15               | 15        | 15        |
|                                                                                                    | Chatsworth Clinic                         | Yes             | Yes       | Yes       | Turbidity                          | 15               | 15        | 15        |
|                                                                                                    | Moorreesburg Sewage                       | Yes             | Yes       | Yes       | Total Coliforms count per 100ml    | 15               | 15        | 15        |
|                                                                                                    | Moorreesburg Municipal Office             | Yes             | Yes       | Yes       | Heterotrophic Plate Count per 1 ml | 15               | 15        | 15        |
|                                                                                                    | Koringberg Municipal Office               | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Riebeeck Wes Municipal Office             | Yes             | Yes       | Yes       | <b>Disinfectant Residual</b>       |                  |           |           |
|                                                                                                    | Riebeeck Kasteel Municipal Office         | Yes             | Yes       | Yes       | Free Chlorine                      | 15               | 15        | 15        |
|                                                                                                    | Yzerfontein Municipal Office              | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Darling Sewage Works                      | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Darling Municipal Office                  | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Malmesbury City Hall                      | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Malmesbury Mount Royal Office             | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Malmesbury Municipal Office Abattoir Str. | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Malmesbury Traffic Office Wesbank         | Yes             | Yes       | Yes       |                                    |                  |           |           |
|                                                                                                    | Malmesbury Swartland High School          | Yes             | Yes       | Yes       |                                    |                  |           |           |

The current samples taken by the Swartland Municipality, over and above the existing Operational Sampling programme of the West Coast District Municipality, and the proposed additional samples to be taken are summarised in the table below.

| Table C.4.1.2: Current parameters sampled by the Swartland Municipality: Routine monitoring of Process Indicators |                         |                                                                                                                                       |                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System                                                                                                            | Sampling Point          | Current Parameters Sampled by Swartland Municipality<br>(Number of samples and frequency)                                             | Additional Proposed Parameters to be sampled by Swartland Municipality<br>(Number of samples and frequency)                                                                               |
| Abbotsdale, Kalbaskraal, Riverlands, Chatsworth                                                                   | Intake Paardenberg      | -                                                                                                                                     | pH, Conductivity and Turbidity Daily                                                                                                                                                      |
|                                                                                                                   | Final Water Paardenberg | -                                                                                                                                     | pH Daily                                                                                                                                                                                  |
|                                                                                                                   |                         | -                                                                                                                                     | Conductivity Morning and Afternoon                                                                                                                                                        |
|                                                                                                                   |                         | -                                                                                                                                     | Turbidity Morning and Afternoon                                                                                                                                                           |
|                                                                                                                   |                         | -                                                                                                                                     | E.Coli and Heterotrophic Plate Count Weekly                                                                                                                                               |
|                                                                                                                   | Distribution Systems    | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (4 Sample points fortnightly). | <i>Adequately covered by the sampling done by the Swartland LM.</i>                                                                                                                       |
| Moorreesburg                                                                                                      | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (2 Sample points fortnightly)  | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality at the Withoogte WTW.</i>                                                         |
| Koringberg                                                                                                        | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (1 Sample point fortnightly)   | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality</i>                                                                               |
| Malmesbury                                                                                                        | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (5 Sample points fortnightly)  | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality and the sampling done at the Swartland WTW (West Coast District Municipality)</i> |
| Riebeek Wes                                                                                                       | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (1 Sample point fortnightly)   | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality at the Swartland WTW.</i>                                                         |
| Riebeek Kasteel                                                                                                   | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (1 Sample point fortnightly)   | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality at the Swartland WTW.</i>                                                         |
| Yzerfontein                                                                                                       | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (1 Sample point fortnightly)   | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality</i>                                                                               |
| Darling                                                                                                           | Distribution System     | pH, Conductivity, Turbidity, Heterotrophic Plate Count, E.Coli, Total Coliform Count and Free Chlorine (2 Sample points fortnightly)  | <i>Adequately covered by the sampling done by the Swartland LM and the West Coast District Municipality</i>                                                                               |

The table below indicates the compliance of the E.Coli monitoring frequency in the water distributions systems of Swartland Municipality, in terms of the minimum requirements of SANS:241-2: 2015 (Table 2). The period assessed was for samples taken from July 2024 to June 2025.

| Table C.4.1.3: Swartland Municipality's Compliance of the Monthly E.Coli Monitoring Frequency for the Water Distribution Systems and at the WTWs in terms of the Minimum Requirements of SANS 241-2:2015 (Table 2). |                   |                                                                  |                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Distribution System                                                                                                                                                                                                 | Population served | Required number of monthly samples<br>(SANS 241-2:2015: Table 2) | Number of monthly E.Coli samples taken on the network by Swartland Mun. and the West Coast DM |
| Koringberg                                                                                                                                                                                                          | 2 021             | 2.0                                                              | 4.6                                                                                           |
| Riebeek Wes and Ongegund                                                                                                                                                                                            | 9 822             | 2.0                                                              | 2.0                                                                                           |
| Riebeek Kasteel                                                                                                                                                                                                     | 11 473            | 2.3                                                              | 4.1                                                                                           |
| Yzerfontein                                                                                                                                                                                                         | 1 898             | 2.0                                                              | 4.1                                                                                           |
| Darling                                                                                                                                                                                                             | 13 479            | 2.7                                                              | 6.0                                                                                           |
| Moorreesburg                                                                                                                                                                                                        | 21 441            | 4.3                                                              | 5.4                                                                                           |
| Malmesbury                                                                                                                                                                                                          | 63 617            | 12.7                                                             | 12.1                                                                                          |
| Abbotsdale                                                                                                                                                                                                          | 5 525             | 2.0                                                              | 2.0                                                                                           |
| Kalbaskraal                                                                                                                                                                                                         | 4 546             | 2.0                                                              | 2.0                                                                                           |
| Riverlands and Chatsworth                                                                                                                                                                                           | 8 643             | 2.0                                                              | 3.2                                                                                           |

The above sampling done by the Swartland Municipality and the West Coast District Municipality ensure that the number of monthly E.Coli samples taken, as required by SANS 241, is adequate.



The table below gives an overview of Swartland Municipality's compliance sampling programme for wastewater (final effluent) quality, as compiled from the final effluent compliance sample results.

| Table C.4.1.4: Sampling Programme for Wastewater Effluent Quality |                |           |           |           |                                          |                  |           |           |
|-------------------------------------------------------------------|----------------|-----------|-----------|-----------|------------------------------------------|------------------|-----------|-----------|
| Registered Sites                                                  |                | Active    |           |           | Determinands per Category                | Frequency (days) |           |           |
|                                                                   |                | Year 0    | Year-1    | Year-2    |                                          | Year 0           | Year-1    | Year-2    |
| #                                                                 | Name           | FY2024/25 | FY2023/24 | FY2022/23 |                                          | FY2024/25        | FY2023/24 | FY2022/23 |
| 1                                                                 | Malmesbury     | Yes       | Yes       | Yes       | <b>Microbiological</b>                   |                  |           |           |
| 2                                                                 | Darling        | Yes       | Yes       | Yes       | Faecal Coliforms (Count per 100ml)       | 30               | 30        | 30        |
| 3                                                                 | Moorreesburg   | Yes       | Yes       | Yes       |                                          |                  |           |           |
| 4                                                                 | Riebeek Valley | Yes       | Yes       | Yes       | <b>Chemical</b>                          |                  |           |           |
| 5                                                                 | Chatsworth     | Yes       | Yes       | Yes       | Ammonia Nitrogen (mg/l as N)             | 30               | 30        | 30        |
| 6                                                                 | Kalbaskraal    | Yes       | Yes       | Yes       | Nitrate Nitrogen (mg/l as N)             | 30               | 30        | 30        |
| 7                                                                 | Koringberg     | Yes       | Yes       | Yes       | Nitrite Nitrogen (mg/l as N)             | 30               | 30        | 30        |
|                                                                   |                |           |           |           | Ortho Phosphate (mg/l as P)              | 30               | 30        | 30        |
|                                                                   |                |           |           |           | COD Filtered (mg/l)                      | 30               | 30        | 30        |
|                                                                   |                |           |           |           |                                          |                  |           |           |
|                                                                   |                |           |           |           | <b>Physical</b>                          |                  |           |           |
|                                                                   |                |           |           |           | Free Chlorine (Activated Sludge Plants)  | 30               | 30        | 30        |
|                                                                   |                |           |           |           | Total Chlorine (Activated Sludge Plants) | 30               | 30        | 30        |
|                                                                   |                |           |           |           | Conductivity (mS/m at 25°C)              | 30               | 30        | 30        |
|                                                                   |                |           |           |           | pH                                       | 30               | 30        | 30        |
|                                                                   |                |           |           |           | TSS (mg/l)                               | 30               | 30        | 30        |

The table below gives an overview of the water quality compliance with regard to the Water Quality Sampling Programme and the wastewater quality compliance with regard to the Wastewater Quality Sampling Programme of Swartland Municipality, as taken from the DWS's IRIS.

| Table C.4.1.5: Compliance to the Sampling Programme (s) |               |                                   |      |      |      |      |      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |
|---------------------------------------------------------|---------------|-----------------------------------|------|------|------|------|------|-----------------------------------|------|------|------|------|------|-----------------------------------|------|------|------|------|------|
| Measurable / Enabling Factor                            | Unit          | Year 0                            |      |      |      |      |      | Year 1                            |      |      |      |      |      | Year 1                            |      |      |      |      |      |
|                                                         |               | FY2024/25                         |      |      |      |      |      | FY2023/24                         |      |      |      |      |      | FY2022/23                         |      |      |      |      |      |
|                                                         |               | MAH                               | CAH  | CCH  | CNA  | O    | D    | MAH                               | CAH  | CCH  | CNA  | O    | D    | MAH                               | CAH  | CCH  | CNA  | O    | D    |
| Potable Water Quality                                   |               |                                   |      |      |      |      |      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |
| Supply system submissions                               | Nr registered | Information not available on IRIS |      |      |      |      |      | Information not available on IRIS |      |      |      |      |      | Information not available on IRIS |      |      |      |      |      |
|                                                         | Nr submitted  |                                   |      |      |      |      |      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |
|                                                         | Annual %      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |
| Monitoring compliance                                   | Average %     |                                   |      |      |      |      |      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |
| Certified Data                                          | Average %     | 100%                              | 100% | 100% | 100% | 100% | 100% | 100%                              | 100% | 100% | 100% | 100% | 100% | 100%                              | 100% | 100% | 100% | 100% | 100% |
| In-Time Submission                                      | Annual %      | 99%                               | 100% | 100% | 99%  | 99%  | 99%  | 96%                               | 100% | 98%  | 96%  | 96%  | 96%  | 99%                               | 100% | 100% | 99%  | 99%  | 99%  |
| Wastewater Quality                                      |               |                                   |      |      |      |      |      |                                   |      |      |      |      |      |                                   |      |      |      |      |      |
|                                                         |               | M                                 | C    | P    | O    |      |      | M                                 | C    | P    | O    |      |      | M                                 | C    | P    | O    |      |      |
| Monitoring compliance                                   | Average %     | 86%                               | 84%  | 70%  | -    |      |      | 68%                               | 59%  | 71%  | -    |      |      | 62%                               | 55%  | 67%  | -    |      |      |
| Certified Data                                          | Average %     | 100%                              | 100% | 100% | -    |      |      | 100%                              | 100% | 100% | -    |      |      | 100%                              | 100% | 100% | -    |      |      |
| In-Time Submission                                      | Average %     | 100%                              | 100% | 100% | -    |      |      | 89%                               | 90%  | 89%  | -    |      |      | 90%                               | 90%  | 90%  | -    |      |      |

**Legend Water**

MAH: Microbiological Acute Health; CAH: Chemical Acute Health; CCH: Chemical Chronic Health;

CNA: Chemical Non Health Aesthetic; O: Operational; D: Disinfectant

**Legend Wastewater**

M: Microbiological; C: Chemical; P: Physical; O: Operational

The table below gives an overview of the water quality monitoring from the WSDP Guide Framework perspective.

| Table C.4.1.6: Water Quality Monitoring Overview from WSDP Guide Framework Perspective |                                                                                                 |                                       |           |           |           |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------|-----------|-----------|-----------|
| WSDP Ref #                                                                             | Measurable / Enabling Factor                                                                    | Unit                                  | Year 0    | Year - 1  | Year - 2  |
|                                                                                        |                                                                                                 |                                       | FY2024/25 | FY2023/24 | FY2022/23 |
| 6.3                                                                                    | Water Supply and Quality (West Coast Bulk WTWs)                                                 |                                       |           |           |           |
| 6.3.2                                                                                  | Process Control in place                                                                        | yes/total WTW in %                    | 100%      | 100%      | 100%      |
| 6.3.3                                                                                  | Monitoring Programme in place                                                                   | yes/total schemes in %                | 100%      | 100%      | 100%      |
| 6.3.4                                                                                  | Sample Analysis Credibility                                                                     | Average %                             | 100%      | 100%      | 100%      |
| 9.2                                                                                    | Monitoring                                                                                      |                                       |           |           |           |
| 9.2.1                                                                                  | % of water abstracted monitored: Surface water                                                  | Q monitored / Q abstracted in %       | 100%      | 100%      | 100%      |
| 9.2.2                                                                                  | % of water abstracted monitored: Ground water                                                   | Q monitored / Q abstracted in %       | 100%      | 100%      | 100%      |
| 9.2.3                                                                                  | % of water abstracted monitored: External Sources (Bulk purchase)                               | Q monitored own / Q purchased in %    | 100%      | 100%      | 100%      |
| 9.2.6                                                                                  | Water quality for formal schemes? (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never)      | frequency                             | Monthly   | Monthly   | Monthly   |
| 9.2.7                                                                                  | Water quality for rudimentary schemes? (1: daily, 2: weekly, 3: monthly, 4: annually, 5: never) | frequency                             | N/A       | N/A       | N/A       |
| 9.2.9                                                                                  | Is the number sufficient in accordance to the SANS241 requirements?                             | yes/no                                | Yes       | Yes       | No        |
| 9.3                                                                                    | Water Quality                                                                                   |                                       |           |           |           |
|                                                                                        | Is there a water safety plan in place?                                                          | yes/no                                | Yes       | Yes       | Yes       |
| 9.3.1                                                                                  | Reporting on quality of water taken from source: urban & rural                                  | yes/total schemes in %                | Yes       | Yes       | Yes       |
| 9.3.5                                                                                  | Quality of water taken from source: urban - % monitored by WSA self?                            | monitored by WSA / total schemes in % | 100%      | 100%      | 100%      |
| 9.3.6                                                                                  | Quality of water taken from source: rural - % monitored by WSA self?                            | monitored by WSA / total schemes in % | N/A       | N/A       | N/A       |
| 9.3.9                                                                                  | Are these results available in electronic format?                                               | yes/no                                | Yes       | Yes       | Yes       |

The table below gives an overview of the wastewater quality monitoring from the WSDP Guide Framework perspective.

| Table C.4.1.7 : Wastewater Quality Monitoring Overview from WSDP Guide Framework Perspective |                                                                                                                                                     |                                    |                                                                              |           |           |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------|-----------|-----------|
| WSDP Ref #                                                                                   | Measurable / Enabling Factor                                                                                                                        | Unit                               | Year 0                                                                       | Year - 1  | Year - 2  |
|                                                                                              |                                                                                                                                                     |                                    | FY2024/25                                                                    | FY2023/24 | FY2022/23 |
| 5.3.1                                                                                        | Monitoring and Sample Failure                                                                                                                       |                                    |                                                                              |           |           |
| 5.3.1.1                                                                                      | Compliance Monitoring: % of tests performed as required by general limits /special limits/ license requirements (Average % over previous 12 months) | Annual %                           | 80%                                                                          | 66%       | 61%       |
| 5.3.1.2                                                                                      | Operational: % of tests performed as required by general limits /special limits/ license requirements (Average % over previous 12 months)           | Annual %                           | Not captured on IRIS and recorded by Process Controllers at each of the WWTW |           |           |
| 6.4                                                                                          | Wastewater Supply and Quality                                                                                                                       |                                    |                                                                              |           |           |
| 6.4.2                                                                                        | Process Control in place                                                                                                                            | yes/total WWTW in %                | Yes                                                                          | Yes       | Yes       |
| 6.4.3                                                                                        | Monitoring Programme in place                                                                                                                       | yes/total WWTW in %                | Yes                                                                          | Yes       | Yes       |
| 6.4.4                                                                                        | Sample Analysis Credibility                                                                                                                         | Average %                          | 100%                                                                         | 100%      | 100%      |
| 9.2                                                                                          | Monitoring                                                                                                                                          |                                    |                                                                              |           |           |
| 9.2.10                                                                                       | Is the number sufficient in accordance to licences?                                                                                                 | yes/no                             | Yes                                                                          | Yes       | Yes       |
| 9.3                                                                                          | Water Quality                                                                                                                                       |                                    |                                                                              |           |           |
|                                                                                              | Is there a wastewater risk abatement plan in place?                                                                                                 | yes/no                             | Yes                                                                          | Yes       | Yes       |
| 9.3.2                                                                                        | Reporting on quality of water returned to the resource: urban                                                                                       | yes/total WWTW in %                | 100%                                                                         | 100%      | 100%      |
| 9.3.3                                                                                        | Reporting on quality of water returned to the resource: rural                                                                                       | yes/total WWTW in %                | N/A                                                                          | N/A       | N/A       |
| 9.3.7                                                                                        | Quality of water returned to resource: urban - % monitored by WSA self?                                                                             | monitored by WSA / urban WWTW in % | 100%                                                                         | 100%      | 100%      |
| 9.3.8                                                                                        | Quality of water returned to resource: rural - % monitored by WSA self?                                                                             | monitored by WSA / rural WWTW in % | N/A                                                                          | N/A       | N/A       |
| 9.3.9                                                                                        | Are these results available in electronic format?                                                                                                   | yes/no                             | Yes                                                                          | Yes       | Yes       |

## DWS's Blue Drop Process

The 2025 Blue Drop PAT results are not yet available. DWS's previous completed Blue Drop Assessment process for the WSAs was in 2023. Blue drop status is awarded to those towns that comply with 95% criteria on drinking water quality management. The blue drop performance of Swartland Municipality was summarised as follows in the DWS's 2023 Blue Drop Report.

| Table 4.1.8: Blue Drop Performance of the Municipality (DWS's 2023 Blue Drop Report)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |                                                               |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------------------------------------------|--------------------|
| Municipal Blue Drop Score                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     | 2011 - 92.89%, 2012 - 95.24%, 2014 - 74.26% and 2023 - 93.76% |                    |
| <p><b>Introductions:</b> The Swartland Local Municipality (SLM) supplies approximately 72 375 people with potable water from its Swartland system and 8 974 people from its Withoogte system, using a water service provider namely West Coast District Municipality (WCDM):</p> <ul style="list-style-type: none"><li>• The Swartland system receives treated water from the Swartland WTP, delivered at a SIV of 12.81 MI/d of which 100% is distributed by the SLM.</li><li>• The Withoogte system receives treated water from the Withoogte WTP, delivered at a SIV of 2.05 MI/d kl/d of which 100% is distributed by the SLM.</li></ul> <p><b>Regulatory Impression:</b> The Swartland Local Municipality (SLM) was well prepared for the Blue Drop assessment and was represented by the Director of the Water and Sanitation Services and accompanied by a team of three technical managers as well as a representative from a private engineering company assisting the SLM with its Blue Drop related requirements. The SLM had a constant Blue drop score history in 2011 and 2012 of between 93% and 95% before ranging down to 74% in 2014. The WSI has an agreement in place with the WCDM which operates the two water treatment plants and delivery system on behalf of the SLM. Both the WSP and the WSI has water safety plans in place which are reviewed on an ongoing basis. Proof of the implementation of these plans were presented of which the installation of chlorine dioxide as additional treatment to counter deteriorating raw water qualities is a major step in ensuring safe water. Both the WSI with its WSP have sufficient technical capabilities in place as well as an operational supply chain system to ensure maintenance is done in time. Scientific services from the WSI are outsourced to a service provider. Incidents are adequately reported and actioned on to ensure good service delivery. The total capital budget for the municipality is R5.3 million, of which R8.2 million has been used mainly on the piping network.</p> <p><b>Technical Findings:</b></p> <p><b>Swartland WSS:</b></p> <ul style="list-style-type: none"><li>• The WTP site is adequately staffed with trained process controllers and with competent supervision.</li><li>• The design capacity was confirmed as 29.1 MI/d and operating at 52% of its capacity.</li><li>• Implementation of the water safety plan and the process audit findings are taking place, with specifically the use of chlorine dioxide at the plant mentioned as an initiative to counter deteriorating raw water qualities.</li><li>• Vandalism, aging pipework, and load shedding remains the key high-risk areas in the distribution system and capital work done at this WSS was focused on upgrading and repairing key pump stations and network piping.</li><li>• The microbiological compliance was excellent while the chemical acute compliance was also excellent, resulting in a low-risk rating of 26.6% for this system.</li></ul> <p><b>Withoogte WSS:</b></p> <ul style="list-style-type: none"><li>• The WTP site has sufficient process controller attendance, as well as a competent supervisory section.</li><li>• Apart from the same capital work done as the Swartland system to counter vandalism and aging pipework, the WCDM's capital expenses was focused on laboratory equipment to improve monitoring, as well as movable items such as machinery and valves to attend to bulk pipeline repairs.</li><li>• The design capacity of the WTP was confirmed as 72 MI/d and operating at 50% of its capacity.</li><li>• Both the microbiological compliance and chemical acute compliance of its final water were excellent, resulting in a low-risk rating of 23% for this system.</li></ul> <p><b>Technical Site Assessment:</b></p> <p>Both plants from the WCDM were inspected to verify the Blue Drop audit findings and the Swartland WTP received a technical site score of 92%, while the Withoogte WTP received a technical site score of 95%. Both plants were found to be neat, well operated, and regularly monitored for performance.</p> <p>Both plants have been testing the addition of chlorine dioxide to its treatment train, with the view of taste and odour removal, as well as ensuring a residual in the pipeline. This was also installed to counter the risk of low supplies of chlorine gas.</p> <p>At Swartland WTP, the installation of lights at the sludge dams, and additional handrails at the filters to ensure safe working conditions, as well as the installation of one more air blower can be considered. The Withoogte plant should install emergency washes at the flocculant dosing station, while the filter backwash pumps should be regularly maintained to ensure sufficient standby.</p> |     |                                                               |                    |
| Performance Area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     | Swartland                                                     | Withoogte          |
| Bulk/WSP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     | West Coast DM Bulk                                            | West Coast DM Bulk |
| Capacity Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 15% | 82.00%                                                        | 82.00%             |
| DWQ Risk Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 20% | 96.00%                                                        | 96.00%             |
| Financial Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10% | 87.95%                                                        | 87.95%             |
| Technical Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 20% | 95.50%                                                        | 95.50%             |
| DWQ Compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 35% | 89.80%                                                        | 98.80%             |
| Bonus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10% | 100.00%                                                       | 100.00%            |
| Penalties                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 10% | 0.00%                                                         | 0.00%              |

| Table 4.1.8: Blue Drop Performance of the Municipality (DWS's 2023 Blue Drop Report) |          |                                               |                                    |
|--------------------------------------------------------------------------------------|----------|-----------------------------------------------|------------------------------------|
| Disqualifiers                                                                        |          | None                                          | None                               |
| <b>Blue Drop Score (2023)</b>                                                        | <b>%</b> | <b>93.33%</b>                                 | <b>96.48%</b>                      |
| Blue Drop Score (2014)                                                               | %        | 75.00%                                        | 70.50%                             |
| Blue Drop Score (2012)                                                               | %        | 95.20%                                        | 95.20%                             |
| Blue Drop Score (2011)                                                               | %        | 92.90%                                        | 92.90%                             |
| System Design Capacity                                                               | kl/d     | 29 100                                        | 72 000                             |
| System Available Capacity                                                            | kl/d     | 29 100                                        | 72 000                             |
| System Input Value                                                                   | kl/d     | 12 810                                        | 2 050                              |
| Capacity utilization                                                                 | %        | 51.55%                                        | 50.00%                             |
| Average Daily Consumption                                                            | l/p/d    | 177                                           | 228                                |
| Resource Abstracted From                                                             |          | Channel conveying water from the Voëlvlei Dam | Misverstand Weir on the Berg River |
| Microbiological Compliance                                                           | %        | 99.41%                                        | 99.35%                             |
| Chemical Health Compliance                                                           | %        | 99.90%                                        | 99.34%                             |
| Risk Defined Compliance                                                              | %        | 93.88%                                        | 96.86%                             |
| VROOM                                                                                | Rand     | R3 201 000                                    | R2 160 000                         |
| BDRR 2023                                                                            | %        | 26.55%                                        | 18.89%                             |
| BDRR 2022                                                                            | %        | 30.00%                                        | 23.00%                             |

The average residential daily consumption (l/p/d) for the last four financial years are summarised in the table below.

| Table C.4.1.9: Average residential daily consumption (l/p/d) for the last four financial years. |                                |                                                         |                                             |                                |                                                         |                                             |
|-------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------|---------------------------------------------|--------------------------------|---------------------------------------------------------|---------------------------------------------|
| Distribution System                                                                             | 2024/2025                      |                                                         |                                             | 2023/2024                      |                                                         |                                             |
|                                                                                                 | Estimated Permanent Population | Aver. Daily Billed Metered Residential Consumption (kl) | Aver. Daily residential consumption (l/p/d) | Estimated Permanent Population | Aver. Daily Billed Metered Residential Consumption (kl) | Aver. Daily residential consumption (l/p/d) |
| Koringberg                                                                                      | 2 021                          | 130.544                                                 | <b>64.6</b>                                 | 1 944                          | 116.474                                                 | <b>59.9</b>                                 |
| Riebeek Wes and Ongegund                                                                        | 9 822                          | 402.84                                                  | <b>41.0</b>                                 | 9 266                          | 396.071                                                 | <b>42.7</b>                                 |
| Riebeek Kasteel                                                                                 | 11 473                         | 692.875                                                 | <b>60.4</b>                                 | 10 723                         | 633.64                                                  | <b>59.1</b>                                 |
| Yzerfontein *                                                                                   | 1 898                          | 574.835                                                 | <b>302.9</b>                                | 1 825                          | 530.165                                                 | <b>290.5</b>                                |
| Darling                                                                                         | 13 479                         | 972.199                                                 | <b>72.1</b>                                 | 13 215                         | 936.471                                                 | <b>70.9</b>                                 |
| Moorreesburg                                                                                    | 21 441                         | 1190.444                                                | <b>55.5</b>                                 | 20 616                         | 1143.948                                                | <b>55.5</b>                                 |
| Malmesbury                                                                                      | 82 330                         | 4991.645                                                | <b>60.6</b>                                 | 78 724                         | 4924.955                                                | <b>62.6</b>                                 |
| <b>Total</b>                                                                                    | <b>142 464</b>                 | <b>8 955.382</b>                                        | <b>62.9</b>                                 | <b>136 313</b>                 | <b>8 681.724</b>                                        | <b>63.7</b>                                 |
| Distribution System                                                                             | 2022/2023                      |                                                         |                                             | 2021/2022                      |                                                         |                                             |
|                                                                                                 | Estimated Permanent Population | Aver. Daily Billed Metered Residential Consumption (kl) | Aver. Daily residential consumption (l/p/d) | Estimated Permanent Population | Aver. Daily Billed Metered Residential Consumption (kl) | Aver. Daily residential consumption (l/p/d) |
| Koringberg                                                                                      | 1 869                          | 107.225                                                 | <b>57.4</b>                                 | 1 797                          | 102.531                                                 | <b>57.1</b>                                 |
| Riebeek Wes and Ongegund                                                                        | 8 742                          | 377.515                                                 | <b>43.2</b>                                 | 8 247                          | 372.542                                                 | <b>45.2</b>                                 |
| Riebeek Kasteel                                                                                 | 10 021                         | 574.29                                                  | <b>57.3</b>                                 | 9 366                          | 513.926                                                 | <b>54.9</b>                                 |
| Yzerfontein *                                                                                   | 1 755                          | 514.621                                                 | <b>293.2</b>                                | 1 687                          | 516.901                                                 | <b>306.4</b>                                |
| Darling                                                                                         | 12 956                         | 882.468                                                 | <b>68.1</b>                                 | 12 702                         | 897.638                                                 | <b>70.7</b>                                 |
| Moorreesburg                                                                                    | 19 824                         | 1113.184                                                | <b>56.2</b>                                 | 19 061                         | 1139.627                                                | <b>59.8</b>                                 |
| Malmesbury                                                                                      | 75 279                         | 4717.603                                                | <b>62.7</b>                                 | 71 987                         | 4524.843                                                | <b>62.9</b>                                 |
| <b>Total</b>                                                                                    | <b>130 446</b>                 | <b>8 286.906</b>                                        | <b>63.5</b>                                 | <b>124 847</b>                 | <b>8 068.008</b>                                        | <b>64.6</b>                                 |

Note: \* The average daily billed metered residential consumption for Yzerfontein was calculated over a six month period (Excluding the November to April period). The high l/c/d is due to the small number of permanent residents in Yzerfontein and the large number of holiday homes.

**The residential consumption for the last four financial years for all the systems were very low, which indicate very efficient water usage by the residential consumers.** The drought situation in the Western Cape and the water restrictions and other WC/WDM measures implemented by the Swartland Municipality contributed to the very low water usage per person.

## DWS's Green Drop Process

The 2025 Green Drop Assessment results are not yet available. DWS's previous complete Green Drop assessment for the WSAs was in 2021 and the results were received early in 2022. Green drop status is awarded to those WSAs that comply with 90% criteria on key selected indicators on wastewater quality management. The green drop performance of Swartland Municipality is summarised as follows in the DWS's 2022 Green Drop Report.

| Table 4.1.10: Green Drop Performance of the Swartland Municipality (DWS's 2022 Green Drop Report)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Average Green Drop Score                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2009 – 75.0%, 2011 – 73.0%, 2013 – 72.0%, 2021 – 89.0% |
| <p><b>Regulator's Comment:</b> Swartland LM delivered a sterling performance and improved from its 2013 baseline of 72% to a 2021 GD score of 89%. The team was well prepared for the assessment and displayed enthusiasm in their approach towards the audit. The WSA was represented by a technical team and supported by their consulting engineers. Notably the aspect of financial management and an ability to reflect on cost of treatment is commendable, this aspect account to a lion share of the GD Criteria for the year under review. The WSA was able to get a full score on this aspect even though it is a new requirement. The WSA is also praised for presenting Water Services Audit, which raises the level of accountability and best practice in South Africa.</p> <p>There are areas that need attention such as the effluent compliance, which also account for the highest percentage of the overall audit score. Improved performance in this aspect will be able to sustain the WSAs performance and take it into an upward trajectory. Environmental Management is one particular area where Swartland can improve substantially, in particular dedicated monitoring of sludge streams, as well as desludging schedules at the oxidation pond facilities. Sampling of control boreholes needs to be implemented in order to have a fit for purpose impact monitoring programme. With respect to Capacity Management, the adoption of automation and control is commended for advanced systems, however, need to be discussed with DWS to ensure that all the risk associated with such interventions are aligned with regulatory processes.</p> <p>Swartland has three (3) potential Green Drop Certified systems, which regrettably cannot be confirmed as the microbiological and/or chemical compliance was below the 90% excellent mark – thereby reducing the audit score to 89% default. The Regulator trust that the municipality will achieve &gt;90% for all the effluent quality criteria in future and earn its Green Drop status in 2023. Well done to the Swartland LM water and wastewater team on the excellent performance and management of wastewater services.</p> <p><b>Green Drop findings:</b></p> <ol style="list-style-type: none"> <li>1. Process control staff partially compliant, noting the aid of automation and telemetry.</li> <li>2. External Service providers competency could not be verified.</li> <li>3. W<sub>2</sub>RAP is in place and implemented and further backed by compliance monitoring presented.</li> <li>4. Financial information was largely available, including budgets and expenditure, evidence of contracts for external services.</li> <li>5. Lack of calibrated flow meters for the inlet and outlet meters.</li> <li>6. Good sewage inspection and process audit reports.</li> <li>7. Updated bylaws and enforcement thereof with regular inspections of restaurants and commercial properties. WSA encouraged to keep enforcement records for future references.</li> <li>8. 12 months of data uploaded on IRIS and supported by availability of general authorisation and Water Use Licenses.</li> <li>9. Generic stormwater management plan and water demand management plan – but lacking wastewater balances.</li> <li>10. No penalties and no directives were issued for any system.</li> <li>11. Three of the seven plants are in high-risk positions.</li> <li>12. Budget had been secured for capital projects for replacement, upgrades, and addition of new unit process at some of the WWTWs and associated infrastructure:             <ul style="list-style-type: none"> <li>o R5 000 000: Multiyear project at Chatsworth WWTWs</li> <li>o R22 740 000: Darling WWTW for a construction of a sludge handling facility.</li> <li>o R41 802 000: Construction of a new works at Moorreesburg WWTW.</li> </ul> </li> </ol> <p>The Riebeeck Valley WWTW was inspected to verify the Green Drop audit findings (<b>Technical Site Assessment: Riebeeck Valley WWTW 97%</b>):</p> <ul style="list-style-type: none"> <li>• The network and pump station was in good condition, routine maintenance was in place and response to sewage blockages and records were kept.</li> <li>• Plant was in very good condition: equipped with an office on site, there was display of certificates, plans, and other certificates.</li> </ul> |                                                        |

**Table 4.1.10: Green Drop Performance of the Swartland Municipality (DWS's 2022 Green Drop Report)**

| <ul style="list-style-type: none"> <li>Operational monitoring, daily logbook or maintenance records were kept on site.</li> <li>The site was tidy and well kept.</li> <li>Flow meters were in place and correctly converted, but not calibrated.</li> <li>All process units were in working order with the exception of the scum withdrawal at the SST.</li> <li>The screens and the grit removal were automated and maintenance records were kept for verification.</li> <li>The WWTW employs high end technology, operated using SCADA controllers and HMI system – this functionality is maintained as result of highly competent Process Controllers.</li> <li>The belt presses were well maintained, flocculants were stored in a suitable area with all safety signs and MSDS.</li> <li>There was a proper facility for chemical disinfection - with safety signs, ventilation, and the required monitoring and management systems.</li> </ul> |        |              |                       |               |                   |                           |                      |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------|-----------------------|---------------|-------------------|---------------------------|----------------------|-------------------|
| GREEN DROP REPORT CARD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |              |                       |               |                   |                           |                      |                   |
| Key Performance Area                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Weight | Chatsworth   | Darling               | Kalbaskraal   | Moorreesburg      | Riebeeck Valley           | Malmesbury           | Koringberg        |
| A: Capacity Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 15%    | 77.5%        | 94.0%                 | 77.5%         | 94.0%             | 98.0%                     | 94.0%                | 80.0%             |
| B: Environmental Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 15%    | 88.8%        | 89.0%                 | 87.5%         | 81.0%             | 85.0%                     | 85.0%                | 87.5%             |
| C: Financial Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 20%    | 100.0%       | 100.0%                | 100.0%        | 100.0%            | 100.0%                    | 100.0%               | 87.5%             |
| D: Technical Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 20%    | 82.4%        | 90.0%                 | 88.2%         | 90.0%             | 90.0%                     | 90.0%                | 88.2%             |
| E: Effluent & Sludge Compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 30%    | 37.5%        | 81.0%                 | 37.5%         | 41.0%             | 81.0%                     | 81.0%                | 26.3%             |
| F: Bonus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        | 58.0%        | 65.5%                 | 28.0%         | 65.5%             | 35.5%                     | 35.5%                | 28.0%             |
| G: Penalties                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | 0.0%         | 0.0%                  | 0.0%          | 0.0%              | 0.0%                      | 0.0%                 | -50.0%            |
| H: Disqualifiers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        | None         | None                  | None          | None              | None                      | None                 | None              |
| <b>2021 Green Drop Score</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | <b>85%</b>   | <b>95% - &gt; 89%</b> | <b>83%</b>    | <b>87%</b>        | <b>92% - &gt;89% %</b>    | <b>92% - &gt;89%</b> | <b>70%</b>        |
| <b>2013 Green Drop Score</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | <b>60%</b>   | <b>71%</b>            | <b>68%</b>    | <b>69%</b>        | <b>62%</b>                | <b>76%</b>           | <b>69%</b>        |
| <b>2011 Green Drop Score</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | <b>62%</b>   | <b>73%</b>            | <b>69%</b>    | <b>71%</b>        | <b>64%</b>                | <b>74%</b>           | <b>64%</b>        |
| <b>2009 Green Drop Score</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        | <b>0%</b>    | <b>75%</b>            | <b>0%</b>     | <b>73%</b>        | <b>0%</b>                 | <b>77%</b>           | <b>0%</b>         |
| System Design Capacity (Ml/d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        | 0.270        | 1.500                 | 0.157         | 1.500             | 1.900                     | 10.000               | 0.030             |
| Design Capacity Utilisation (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |        | 91%          | 83%                   | 48%           | 73%               | 44%                       | 53%                  | 273%              |
| Resource Discharged into                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        | Swart River  | Groen River           | Non-discharge | Sand River        | Krom River and irrigation | Diep River           | Brak River        |
| Microbiological Compliance (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        | 17%          | 71%                   | NMR           | Insufficient Data | 81%                       | 100%                 | Insufficient Data |
| Chemical Compliance (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |        | 0%           | 96%                   | NMR           | Insufficient Data | 95%                       | 87%                  | Insufficient Data |
| Physical Compliance (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |        | 61%          | 98%                   | NMR           | Insufficient Data | 98%                       | 100%                 | Insufficient Data |
| Wastewater Risk Rating (CRR% of CRRmax)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |        |              |                       |               |                   |                           |                      |                   |
| <b>CRR (2011)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        | <b>72.0%</b> | <b>72.0%</b>          | <b>72.0%</b>  | <b>61.0%</b>      | <b>67.0%</b>              | <b>83.0%</b>         | <b>56.0%</b>      |
| <b>CRR (2013)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        | <b>59.0%</b> | <b>53.0%</b>          | <b>35.0%</b>  | <b>53.0%</b>      | <b>59.0%</b>              | <b>71.0%</b>         | <b>53.0%</b>      |
| <b>CRR (2021)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        | <b>70.6%</b> | <b>29.4%</b>          | <b>23.5%</b>  | <b>76.5%</b>      | <b>23.5%</b>              | <b>36.4%</b>         | <b>88.2%</b>      |



Swartland Municipality also received their 2023 Green Drop Risk Ratings, as calculated from the 2023 assessment done by the DWS.

**Table C.4.1.11: Green Drop Risk Rating of Swartland Municipality (DWS's 2023 Green Drop Progress Report)**

| Municipal CRR% 2023 (%CRR/CRRmax)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |        | 51.2%           |                  |                 |                  |                  |                  |                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|-----------------|------------------|-----------------|------------------|------------------|------------------|-----------------|
| Introduction:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |        |                 |                  |                 |                  |                  |                  |                 |
| Swartland Local Municipality (SLM) owns and operates seven (7) WWTWs which range in design capacity from 30 kl/day to 10 000 kl/day.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |        |                 |                  |                 |                  |                  |                  |                 |
| <b>Regulator's Comment:</b> The Swartland Local Municipality (SLM) has provided good information for the GD PAT in terms of the design capacities of the WWTWs and all the WWTWs are registered and approved. However, the operational flow at each works was not able to be verified as no flow data was provided to support the reported operational flows at the works, which represents a critical risk as these impacts on the CRR scores significantly. The WSA is encouraged to confirm the operational capacity of all works with accurate flow records as the lack of flow data increases the CRR risk rating. In addition, the WSA must ensure that inflow and outflow meters are installed if necessary or repaired if required and that daily flow readings are recorded. Annual flow meter calibration should also be performed to ensure that the operational capacity of the works does not exceed its design capacity.                                                                                                                                                                                 |  |        |                 |                  |                 |                  |                  |                  |                 |
| The compliance of the final effluent is good at some sites (Darling, Malmesbury) and poor at the other sites including Chatsworth Kalbaskraal, Koringberg, Moorreesburg and Riebeeek Valley.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |        |                 |                  |                 |                  |                  |                  |                 |
| Sufficient evidence exists for external maintenance teams to provide civil, electrical and mechanical assistance and organograms included relevant staff members at SLM. The competencies of the internal staff should be verified with their qualification as the availability of a preventative maintenance team is essential to ensure that routine preventative maintenance is performed regularly. In addition, the availability of supervisors and process controllers has a significant impact on the quality of final effluent discharged and the regulator notes that many sites have insufficient qualified and competent staff at the sites to operate and manage the WWTWs effectively. These impacts significantly on the CRR scores obtained for the different WWTWs.                                                                                                                                                                                                                                                                                                                                    |  |        |                 |                  |                 |                  |                  |                  |                 |
| The SLM has a good W <sub>2</sub> RAP document for each site although outdated and therefore the WSA is encouraged to update the W <sub>2</sub> RAP's as new risks may be present. The WSA is encouraged to review the W <sub>2</sub> RAPs and implement the risk-based methodology of the W <sub>2</sub> RAP as this ensures that the overall risk rating decreases with an improvement in effluent quality compliance. The WSA must also develop and implement a GDIP plan which identifies the shortcomings for all Green Drop criteria and allocates responsibility, budget and timeframes to address the gaps. A CAP was not required for SLM due to the previous scores awarded during the 2022 GD. There are some capital projects planned including a de-watering plant for Darling, a new macerator for Malmesbury and an upgrade for Moorreesburg WWTW which will assist in improving the effluent quality. The SLM is encouraged to prioritize the appointment of qualified competent process control staff and supervisors to ensure that the effluent quality is maintained within the regulatory limits. |  |        |                 |                  |                 |                  |                  |                  |                 |
| Risk Assessment Areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Weight | Chatsworth      | Darling          | Kalbaskraal     | Moorreesburg     | Riebeeek Valley  | Malmesbury       | Koringberg      |
| Class of Works                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |        | E: Approved     | B: Approved      | E: Approved     | D: Approved      | B: Approved      | A: Approved      | E: Approved     |
| Treatment Technology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |        | Oxidation Ponds | Activated Sludge | Oxidation Ponds | Activated Sludge | Activated Sludge | Activated Sludge | Oxidation Ponds |
| <b>A: Total Design Capacity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | Kl/d   | 270             | 1 500            | 157             | 1 500            | 1 900            | 10 000           | 30              |
| <b>B: Operational Capacity (% inflow/design)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | %      | 90.7%           | 84.2%            | 49.0%           | 68.5%            | 45.3%            | 55.6%            | 276.7%          |
| <b>C: Effluent Quality Non-compliance</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | #      | 4               | 5                | 5               | 7                | 7                | 1                | 2               |





| Table C.4.1.11: Green Drop Risk Rating of Swartland Municipality (DWS's 2023 Green Drop Progress Report) |     |                                        |                                        |                                        |                                        |                                        |                                        |                                        |
|----------------------------------------------------------------------------------------------------------|-----|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| % Microbiological Compliance                                                                             | %   | 30.0%                                  | 90.0%                                  | 10.0%                                  | 11.1%                                  | 9.1%                                   | 100.0%                                 | 0.0%                                   |
| % Physical Compliance                                                                                    | %   | 73.3%                                  | 80.0%                                  | 10.0%                                  | 48.1%                                  | 78.8%                                  | 100.0%                                 | 50.0%                                  |
| % Chemical Compliance                                                                                    | %   | 10.0%                                  | 60.0%                                  | 0.0%                                   | 22.2%                                  | 48.5%                                  | 93.3%                                  | NMR                                    |
| <b>D: Technical Skills Compliance</b>                                                                    | %   | 33.3%                                  | 50.0%                                  | 33.3%                                  | 50.0%                                  | 33.3%                                  | 66.7%                                  | 33.3%                                  |
| Process Controller Compliance                                                                            | %   | 0%                                     | 50%                                    | 0%                                     | 50%                                    | 0%                                     | 100%                                   | 0%                                     |
| Supervisor Compliance                                                                                    | %   | 0%                                     | 0%                                     | 0%                                     | 0%                                     | 0%                                     | 0%                                     | 0%                                     |
| Maintenance Team Compliance                                                                              | %   | 100.0%                                 | 100.0%                                 | 100.0%                                 | 100.0%                                 | 100.0%                                 | 100.0%                                 | 100.0%                                 |
| <b>CRR (2023)</b>                                                                                        | %   | <b>66.7%</b>                           | <b>64.7%</b>                           | <b>66.7%</b>                           | <b>76.5%</b>                           | <b>70.6%</b>                           | <b>40.9%</b>                           | <b>83.3%</b>                           |
| <b>CRR (2021)</b>                                                                                        | %   | <b>70.6%</b>                           | <b>29.4%</b>                           | <b>23.5%</b>                           | <b>76.5%</b>                           | <b>23.5%</b>                           | <b>36.4%</b>                           | <b>88.2%</b>                           |
| <b>CRR (2013)</b>                                                                                        | %   | <b>59.0%</b>                           | <b>53.0%</b>                           | <b>35.0%</b>                           | <b>53.0%</b>                           | <b>59.0%</b>                           | <b>71.0%</b>                           | <b>53.0%</b>                           |
| <b>CRR (2011)</b>                                                                                        | %   | <b>72.0%</b>                           | <b>72.0%</b>                           | <b>72.0%</b>                           | <b>61.0%</b>                           | <b>67.0%</b>                           | <b>83.0%</b>                           | <b>56.0%</b>                           |
| W <sub>2</sub> RAP Status: 2022 Green Drop Report                                                        |     | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) |
| W <sub>2</sub> RAP Status: 2023 Green Drop PAT                                                           |     | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) | Draft document (unapproved by Council) |
| Capital and Refurbishment Projects (Rand)                                                                |     | 0                                      | R7 332 537                             | 0                                      | R54 716 114                            | 0                                      | R526 248                               | 0                                      |
| Description of Capital and Refurbishment Projects                                                        |     | Non-Available                          | De-watering plant for Darling WWTW.    | Non-Available                          | Moorreesburg WWTW upgrading.           | Non-Available                          | New Macerator                          | Non-Available                          |
| 2022 GD Score                                                                                            | %   | 85.0%                                  | 89.0%                                  | 83.0%                                  | 87.0%                                  | 89.0%                                  | 89.0%                                  | 70.0%                                  |
| GD Improvement Plan (GDIP)                                                                               | Y/N | No                                     | No                                     | No                                     | No                                     | No                                     | No                                     | No                                     |
| Corrective Action Plan (CAP)                                                                             | Y/N | No                                     | No                                     | No                                     | No                                     | No                                     | No                                     | No                                     |

## C.4.2. Water Quality Compliance

The table below gives an overview of the Swartland Municipality's water quality compliance, as taken from the DWS IRIS.

| Table C.4.2.1: Overview of Water Quality Compliance   |                                                  |                                  |                                            |      |      |      |      |     |                                             |      |      |      |      |     |                           |      |      |     |      |     |
|-------------------------------------------------------|--------------------------------------------------|----------------------------------|--------------------------------------------|------|------|------|------|-----|---------------------------------------------|------|------|------|------|-----|---------------------------|------|------|-----|------|-----|
| WSDP<br>Ref #                                         | Measurable /<br>Enabling Factor                  | Unit                             | Year 0                                     |      |      |      |      |     | Year -1                                     |      |      |      |      |     | Year -2                   |      |      |     |      |     |
|                                                       |                                                  |                                  | FY2024/25                                  |      |      |      |      |     | FY2023/24                                   |      |      |      |      |     | FY2022/23                 |      |      |     |      |     |
|                                                       |                                                  |                                  | MAH                                        | CAH  | CCH  | CNA  | O    | D   | MAH                                         | CAH  | CCH  | CNA  | O    | D   | MAH                       | CAH  | CCH  | CNA | O    | D   |
| Results from Integrated Regulatory Information System |                                                  |                                  |                                            |      |      |      |      |     |                                             |      |      |      |      |     |                           |      |      |     |      |     |
| n/a                                                   |                                                  | Total                            | 443                                        | 85   | 783  | 986  | 1666 | 818 | 425                                         | 85   | 764  | 952  | 1595 | 782 | 378                       | 70   | 658  | 840 | 1428 | 700 |
| n/a                                                   | Analysis compliance                              | Nr Failures                      | 1                                          | 0    | 0    | 1    | 78   | 778 | 2                                           | 0    | 1    | 0    | 62   | 695 | 6                         | 0    | 0    | 1   | 65   | 678 |
| n/a                                                   |                                                  | Compliance %                     | 100%                                       | 100% | 100% | 100% | 95%  | 5%  | 100%                                        | 100% | 100% | 100% | 96%  | 11% | 98%                       | 100% | 100% | 95% | 3%   |     |
| n/a                                                   |                                                  | Total                            | 388                                        | 17   | 388  | 387  | 388  | 388 | 387                                         | 17   | 387  | 387  | 387  | 387 | 350                       | 14   | 350  | 350 | 350  | 350 |
| n/a                                                   | Samples frequency                                | Nr Failures                      | 25                                         | 1    | 25   | 25   | 25   | 25  | 22                                          | 1    | 22   | 22   | 22   | 22  | 25                        | 1    | 25   | 25  | 25   | 25  |
| n/a                                                   |                                                  | Compliance %                     | 94%                                        | 94%  | 94%  | 94%  | 94%  | 94% | 94%                                         | 94%  | 94%  | 94%  | 94%  | 94% | 93%                       | 93%  | 93%  | 93% | 93%  | 93% |
| n/a                                                   |                                                  | Total                            | 200                                        | 17   | 200  | 200  | 200  | 200 | 204                                         | 17   | 204  | 204  | 204  | 204 | 168                       | 14   | 168  | 168 | 168  | 168 |
| n/a                                                   | Sites compliance                                 | Nr Failures                      | 12                                         | 1    | 12   | 12   | 12   | 12  | 12                                          | 1    | 12   | 12   | 12   | 12  | 12                        | 1    | 12   | 12  | 12   | 12  |
| n/a                                                   |                                                  | Compliance %                     | 94%                                        | 94%  | 94%  | 94%  | 94%  | 94% | 94%                                         | 94%  | 94%  | 94%  | 94%  | 94% | 93%                       | 93%  | 93%  | 93% | 93%  | 93% |
| 6.3                                                   | Water Supply and Quality                         |                                  |                                            |      |      |      |      |     |                                             |      |      |      |      |     |                           |      |      |     |      |     |
| 6.3.6                                                 | Blue Drop Status                                 | last year certified by DWS       | 2026 Blue Drop Assessment still to be done |      |      |      |      |     | Waiting for results from 2025 Blue Drop PAT |      |      |      |      |     | 2023 Blue Drop Assessment |      |      |     |      |     |
| 9.3                                                   | Water Quality                                    |                                  |                                            |      |      |      |      |     |                                             |      |      |      |      |     |                           |      |      |     |      |     |
| 9.3.10                                                | % Time (days) within SANS 241 standards per year | Average of analysis compliance % | 83%                                        |      |      |      |      |     | 84%                                         |      |      |      |      |     | 83%                       |      |      |     |      |     |

### Legend

MAH: Microbiological Acute Health; CAH: Chemical Acute Health; CCH: Chemical Chronic Health; CNA: Chemical Non Health Aesthetic; O: Operational; D: Disinfectant

The Table below gives an overview of the number of compliance samples taken over the period July 2024 to June 2025 for the various water distribution networks.

| Table C.4.2.2: Number of water quality compliance samples taken throughout the various water distribution systems over the period July 2024 to June 2025 |              |            |            |         |                  |              |             |            |            |            |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------|------------|---------|------------------|--------------|-------------|------------|------------|------------|------------|
| Number of Sampling points within the distribution system (Swartland Mun)                                                                                 | 2            | 1          | 5          | 2       | 1                | 1            | 1           | 1          | 1          | 1          | 1          |
| Parameter Sampled                                                                                                                                        | Moorreesburg | Koringberg | Malmesbury | Darling | Riebeeck Kasteel | Riebeeck Wes | Yzerfontein | Riverlands | Abbotsdale | Chatsworth | Kalbakraal |
| pH (at 25°C)                                                                                                                                             | 61           | 48         | 145        | 71      | 49               | 24           | 47          | 19         | 24         | 19         | 24         |
| Conductivity                                                                                                                                             | 61           | 48         | 145        | 71      | 49               | 24           | 47          | 19         | 24         | 19         | 24         |
| Turbidity                                                                                                                                                | 61           | 48         | 145        | 71      | 49               | 24           | 47          | 19         | 24         | 19         | 24         |
| Free Chlorine                                                                                                                                            | 61           | 48         | 143        | 71      | 48               | 24           | 47          | 19         | 24         | 19         | 24         |
| Total Coliform Bacteria                                                                                                                                  | 65           | 55         | 147        | 73      | 49               | 24           | 49          | 19         | 24         | 19         | 24         |
| E.Coli                                                                                                                                                   | 65           | 55         | 145        | 72      | 49               | 24           | 49          | 19         | 24         | 19         | 24         |
| Heterotrophic Plate Count                                                                                                                                | 64           | 44         | 140        | 67      | 44               | 24           | 42          | 19         | 24         | 19         | 24         |
| Total number of samples                                                                                                                                  | 438          | 346        | 1 010      | 496     | 337              | 168          | 328         | 133        | 168        | 133        | 168        |
| Total number of samples taken for the previous five financial years                                                                                      |              |            |            |         |                  |              |             |            |            |            |            |
| 2023/2024                                                                                                                                                | 329          | 336        | 1 073      | 519     | 353              | 192          | 347         | 182        | 179        | 195        | 181        |
| 2022/2023                                                                                                                                                | 344          | 362        | 1 055      | 533     | 342              | 175          | 339         | 184        | 176        | 175        | 177        |
| 2021/2022                                                                                                                                                | 231          | 352        | 898        | 409     | 340              | 189          | 336         | 169        | 168        | 176        | 169        |
| 2020/2021                                                                                                                                                | 252          | 290        | 886        | 370     | 321              | 168          | 286         | 168        | 168        | 168        | 168        |
| 2019/2020                                                                                                                                                | 226          | 230        | 670        | 358     | 81               | 79           | 238         | 172        | 95         | 135        | 130        |

Note: Full SANS241:2015 analysis was also done for each of the above systems during the last five financial years by Swartland Municipality, which include all the other parameters.

The water quality of all the water distribution systems in Swartland Municipality was either “Excellent” or “Good”, according to the SANS0241 classification, except for Darling and Yzerfontein that were “Unacceptable” for Operational Efficiency (due to pH failures) and Koringberg that was “Unacceptable” for Acute Health Microbiological (due to E.Coli failures). The water quality compliance sample results are included in Annexure D for each of the water distribution systems. A full SANS0241 analyses was done during the 2024/2025 financial year. The overall percentage of compliance of the water quality samples taken over the period July to June for the last three financial years is summarised in the table below per water distribution system (SANS 241: 2015 Limits).

| Table C.4.2.3: Percentage compliance of the final water quality samples for the last three financial years |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------|--------------------|------------------------------------------------------|--------|--------|--------------------------------------|-------|-------|
| Performance Indicator                                                                                      | Performance Indicator categorised as unacceptable Yes / No<br>(Table 4 of SANS 241-2:2015) |                    |                    | % Sample Compliance according to SANS241-2015 Limits |        |        | Number of Samples taken into account |       |       |
|                                                                                                            | 24/25                                                                                      | 23/24              | 22/23              | 24/25                                                | 23/24  | 22/23  | 24/25                                | 23/24 | 22/23 |
| <b>Moorreesburg</b>                                                                                        |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 10                                   | 10    | 10    |
| Acute Health Microbiological                                                                               | No (Good)                                                                                  | No (Excellent)     | No (Excellent)     | 95.7%                                                | 98.0%  | 100.0% | 69                                   | 51    | 53    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 107                                  | 93    | 95    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 99.3%                                                | 100.0% | 100.0% | 146                                  | 118   | 122   |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 96.9%                                                | 97.4%  | 95.6%  | 259                                  | 196   | 205   |
| <b>Koringberg</b>                                                                                          |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | Yes (Unacceptable)                                                                         | No (Good)          | No (Excellent)     | 91.2%                                                | 96.2%  | 100.0% | 57                                   | 53    | 59    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 71                                   | 69    | 69    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 108                                  | 106   | 110   |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | Yes (Unacceptable) | No (Good)          | 93.0%                                                | 87.8%  | 92.5%  | 199                                  | 196   | 214   |
| <b>Malmesbury</b>                                                                                          |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 35                                   | 35    | 33    |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 99.4%  | 100.0% | 155                                  | 170   | 163   |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 99.7%                                                | 100.0% | 100.0% | 300                                  | 306   | 305   |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 99.7%  | 99.7%  | 374                                  | 384   | 383   |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 95.5%                                                | 98.1%  | 96.8%  | 602                                  | 638   | 627   |
| <b>Darling</b>                                                                                             |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 10                                   | 10    | 10    |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 98.7%                                                | 98.8%  | 97.6%  | 76                                   | 82    | 82    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 99.2%  | 100.0% | 117                                  | 120   | 122   |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 98.3%  | 166                                  | 170   | 176   |
| Operational Efficiency                                                                                     | Yes (Unacceptable)                                                                         | No (Excellent)     | No (Good)          | 86.2%                                                | 96.4%  | 90.7%  | 290                                  | 303   | 311   |
| <b>Riebeeck Kasteel</b>                                                                                    |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 51                                   | 54    | 51    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 71                                   | 73    | 72    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 110                                  | 110   | 110   |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 94.9%                                                | 95.7%  | 97.0%  | 195                                  | 207   | 199   |
| <b>Riebeeck Wes</b>                                                                                        |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 26                                   | 30    | 27    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 47                                   | 51    | 48    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 60                                   | 66    | 62    |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 99.0%                                                | 100.0% | 100.0% | 100                                  | 114   | 104   |
| <b>Yzerfontein</b>                                                                                         |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 98.1%  | 51                                   | 55    | 52    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 70                                   | 72    | 71    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 106                                  | 108   | 108   |
| Operational Efficiency                                                                                     | Yes (Unacceptable)                                                                         | Yes (Unacceptable) | Yes (Unacceptable) | 85.7%                                                | 85.1%  | 84.3%  | 189                                  | 202   | 197   |
| <b>Riverlands</b>                                                                                          |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | Yes (Unacceptable) | 100.0%                                               | 100.0% | 90.0%  | 21                                   | 28    | 30    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 42                                   | 49    | 48    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 50                                   | 64    | 62    |

| Table C.4.2.3: Percentage compliance of the final water quality samples for the last three financial years |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------|--------------------|------------------------------------------------------|--------|--------|--------------------------------------|-------|-------|
| Performance Indicator                                                                                      | Performance Indicator categorised as unacceptable Yes / No<br>(Table 4 of SANS 241-2:2015) |                    |                    | % Sample Compliance according to SANS241-2015 Limits |        |        | Number of Samples taken into account |       |       |
|                                                                                                            | 24/25                                                                                      | 23/24              | 22/23              | 24/25                                                | 23/24  | 22/23  | 24/25                                | 23/24 | 22/23 |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Excellent)     | No (Good)          | 100.0%                                               | 95.4%  | 90.0%  | 80                                   | 108   | 110   |
| <b>Abbotsdale</b>                                                                                          |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Good)          | No (Excellent)     | 100.0%                                               | 96.4%  | 100.0% | 26                                   | 28    | 27    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 47                                   | 49    | 48    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 60                                   | 62    | 62    |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | Yes (Unacceptable) | No (Excellent)     | 94.0%                                                | 87.9%  | 93.3%  | 100                                  | 107   | 105   |
| <b>Chatsworth</b>                                                                                          |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Excellent)     | Yes (Unacceptable) | 100.0%                                               | 100.0% | 89.7%  | 21                                   | 31    | 29    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 42                                   | 51    | 47    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 50                                   | 66    | 60    |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 97.4%  | 94.2%  | 80                                   | 116   | 104   |
| <b>Kalbaskraal</b>                                                                                         |                                                                                            |                    |                    |                                                      |        |        |                                      |       |       |
| Acute Health Chemical                                                                                      | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 5                                    | 5     | 5     |
| Acute Health Microbiological                                                                               | No (Excellent)                                                                             | No (Good)          | No (Good)          | 100.0%                                               | 96.6%  | 96.3%  | 26                                   | 29    | 27    |
| Chronic Health                                                                                             | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 47                                   | 49    | 48    |
| Aesthetic                                                                                                  | No (Excellent)                                                                             | No (Excellent)     | No (Excellent)     | 100.0%                                               | 100.0% | 100.0% | 60                                   | 62    | 62    |
| Operational Efficiency                                                                                     | No (Excellent)                                                                             | No (Good)          | No (Excellent)     | 97.0%                                                | 90.7%  | 94.3%  | 100                                  | 108   | 106   |

The table below gives an overview of the four categories under which the risks posed by micro-organism, physical or aesthetic property or chemical substance of potable water is normally classified.

| Table C.4.2.4: Four Categories under which the risks posed by Micro-organism, Physical or Aesthetic Property or Chemical Substance of potable water is normally classified |                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category                                                                                                                                                                   | Risk                                                                                                                                                                                                              |
| Acute Health                                                                                                                                                               | Determinand that poses an immediate unacceptable health risk if present at concentration values exceeding the numerical limits specified in this part of SANS 241.                                                |
| Aesthetic                                                                                                                                                                  | Determinand that taints water with respect to taste, odour and colour and that does not pose an unacceptable health risk if present at concentration values exceeding the numerical limits specified in SANS 241. |
| Chronic Health                                                                                                                                                             | Determinand that poses an unacceptable health risk if ingested over an extended period if present at concentration values exceeding the numerical limits specified in SANS 241.                                   |
| Operational                                                                                                                                                                | Determinand that is essential for assessing the efficient operation of treatment systems and risks from infrastructure                                                                                            |

The table below gives an overview of Swartland Municipality's wastewater quality compliance, as taken from the IRIS.

| Table C.4.2.5: Overview of Wastewater Quality Compliance |                                                       |                            |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
|----------------------------------------------------------|-------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------|-----|-----|-----|-----------------------------------------------------|-----|-----|-----|---------------------|-----|-----|-----|
| WSDP Ref #                                               | Measurable / Enabling Factor                          | Unit                       | Year 0                                                                        |     |     |     | Year-1                                              |     |     |     | Year-2              |     |     |     |
|                                                          |                                                       |                            | FY2024/25                                                                     |     |     |     | FY2023/24                                           |     |     |     | FY2022/23           |     |     |     |
|                                                          |                                                       |                            | M                                                                             | C   | P   | O   | M                                                   | C   | P   | O   | M                   | C   | P   | O   |
|                                                          | Results from Integrated Regulatory Information System |                            |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| n/a                                                      | Regulatory compliance                                 | Total                      | 128                                                                           | 641 | 388 | -   | 93                                                  | 209 | 314 | -   | 80                  | 186 | 275 | -   |
| n/a                                                      |                                                       | Nr Failures                | 55                                                                            | 244 | 151 | -   | 64                                                  | 97  | 94  | -   | 55                  | 104 | 84  | -   |
| n/a                                                      |                                                       | Compliance %               | 57%                                                                           | 62% | 61% | N/A | 31%                                                 | 54% | 70% | N/A | 31%                 | 44% | 69% | N/A |
| n/a                                                      | Operational compliance                                | Total                      | Not captured on IRIS, but recorded by Process Controllers at each of the WWTW |     |     |     |                                                     |     |     |     |                     |     |     |     |
| n/a                                                      |                                                       | Nr Failures                |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| n/a                                                      |                                                       | Compliance %               |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| 5.3.1                                                    | Monitoring and Sample Failure                         |                            |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| 5.3.1.3                                                  | Average % of sample failure                           | Failure %                  | 43%                                                                           | 38% | 39% | N/A | 69%                                                 | 46% | 30% | N/A | 69%                 | 56% | 31% | N/A |
| 5.3.1.4                                                  |                                                       |                            |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| 5.3.1.5                                                  |                                                       |                            |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| 6.3                                                      | Water Supply and Quality                              |                            |                                                                               |     |     |     |                                                     |     |     |     |                     |     |     |     |
| 6.4.6                                                    | Green Drop Status                                     | last year certified by DWS | 2026 Green Drop PAT still to be done                                          |     |     |     | Waiting for results from 2025 Green Drop Assessment |     |     |     | 2023 Green Drop PAT |     |     |     |

**Legend**
**M:** Microbiological; **C:** Chemical; **P:** Physical; **O:** Operational

The final effluent quality compliance sample results are included in Annexure D for each of the WWTWs. The overall microbiological, chemical and physical compliance percentages of the final effluent samples taken over the last three financial years at the Malmesbury-, Darling-, Moorreesburg-, Koringberg-, Chatsworth-, Kalbaskraal- and Riebeek Valley WWTW are summarised in the tables below.

**Table C.4.2.6: Percentage Microbiological (Faecal Coliforms) compliance of the compliance samples taken at the various WWTWs for the last three financial years**

| WWTW           | 2024/2025    | 2023/2024    | 2022/2023    |
|----------------|--------------|--------------|--------------|
| Malmesbury     | 92.9%        | 75.0%        | 100.0%       |
| Darling        | 92.3%        | 91.7%        | 100.0%       |
| Moorreesburg   | 76.5%        | 100.0%       | 8.3%         |
| Koringberg     | 0.0%         | 8.3%         | 0.0%         |
| Chatsworth     | 8.3%         | 8.3%         | 8.3%         |
| Kalbaskraal    | 100.0%       | 100.0%       | 100.0%       |
| Riebeek Valley | 53.8%        | 58.3%        | 83.3%        |
| <b>Total</b>   | <b>62.4%</b> | <b>63.1%</b> | <b>57.1%</b> |

**Table C.4.2.7: Percentage Chemical compliance of the compliance samples taken at the various WWTWs for the last three financial years**

| WWTW           | 2024/2025    |              |              |                 |              | 2023/2024    |              |              |                 |              | 2022/2023    |              |              |                 |              |
|----------------|--------------|--------------|--------------|-----------------|--------------|--------------|--------------|--------------|-----------------|--------------|--------------|--------------|--------------|-----------------|--------------|
|                | Ammonia      | Nitrates     | COD Filtered | Ortho Phosphate | Overall      | Ammonia      | Nitrates     | COD Filtered | Ortho Phosphate | Overall      | Ammonia      | Nitrates     | COD Filtered | Ortho Phosphate | Overall      |
| Malmesbury     | 100.0%       | 83.3%        | 100.0%       | 91.7%           | <b>93.9%</b> | 0.0%         | 100.0%       | 91.7%        | 91.7%           | <b>70.8%</b> | 50.0%        | 66.7%        | 100.0%       | 100.0%          | <b>79.2%</b> |
| Darling        | 50.0%        | 100.0%       | 76.9%        | 100.0%          | <b>81.6%</b> | 66.7%        | 100.0%       | 91.7%        | 100.0%          | <b>89.6%</b> | 50.0%        | 100.0%       | 83.3%        | 100.0%          | <b>83.3%</b> |
| Moorreesburg   | 100.0%       | 66.7%        | 92.3%        | 75.0%           | <b>83.7%</b> | 75.0%        | 75.0%        | 75.0%        | 75.0%           | <b>75.0%</b> | 16.7%        | 100.0%       | 25.0%        | 41.7%           | <b>45.8%</b> |
| Koringberg     | 0.0%         | 100.0%       | 0.0%         | 8.3%            | <b>27.1%</b> | 8.3%         | 100.0%       | 0.0%         | 8.3%            | <b>29.2%</b> | 0.0%         | 100.0%       | 0.0%         | 8.3%            | <b>27.1%</b> |
| Chatsworth     | 0.0%         | 100.0%       | 16.7%        | 25.0%           | <b>35.4%</b> | 0.0%         | 100.0%       | 16.7%        | 33.3%           | <b>37.5%</b> | 0.0%         | 100.0%       | 8.3%         | 16.7%           | <b>31.3%</b> |
| Kalbaskraal    | N/A          | N/A          | 58.3%        | N/A             | <b>58.3%</b> | N/A          | N/A          | 66.7%        | N/A             | <b>66.7%</b> | N/A          | N/A          | 58.3%        | N/A             | <b>58.3%</b> |
| Riebeek Valley | 8.3%         | 100.0%       | 69.2%        | 91.7%           | <b>67.3%</b> | 91.7%        | 91.7%        | 100.0%       | 91.7%           | <b>93.8%</b> | 75.0%        | 100.0%       | 100.0%       | 83.3%           | <b>89.6%</b> |
| <b>Total</b>   | <b>43.1%</b> | <b>91.7%</b> | <b>60.2%</b> | <b>65.3%</b>    | <b>64.8%</b> | <b>40.3%</b> | <b>94.4%</b> | <b>63.1%</b> | <b>66.7%</b>    | <b>66.0%</b> | <b>31.9%</b> | <b>94.4%</b> | <b>53.6%</b> | <b>58.3%</b>    | <b>59.3%</b> |

**Table C.4.2.8: Percentage Physical compliance of the compliance samples taken at the various WWTWs for the last three financial years.**

| WWTW           | 2024/2025    |                         |                        |              | 2023/2024    |                         |                        |               | 2022/2023    |                         |                        |               |
|----------------|--------------|-------------------------|------------------------|--------------|--------------|-------------------------|------------------------|---------------|--------------|-------------------------|------------------------|---------------|
|                | pH           | Electrical Conductivity | Total Suspended Solids | Overall      | pH           | Electrical Conductivity | Total Suspended Solids | Overall       | pH           | Electrical Conductivity | Total Suspended Solids | Overall       |
| Malmesbury     | 58.3%        | 100.0%                  | 83.3%                  | <b>80.6%</b> | 50.0%        | 91.7%                   | 58.3%                  | <b>66.7%</b>  | 66.7%        | 100.0%                  | 91.7%                  | <b>86.1%</b>  |
| Darling        | 100.0%       | 83.3%                   | 75.0%                  | <b>86.1%</b> | 100.0%       | 75.0%                   | 83.3%                  | <b>86.1%</b>  | 100.0%       | 83.3%                   | 66.7%                  | <b>83.3%</b>  |
| Moorreesburg   | 100.0%       | 75.0%                   | 100.0%                 | <b>91.7%</b> | 100.0%       | 58.3%                   | 75.0%                  | <b>77.8%</b>  | 100.0%       | 50.0%                   | 33.3%                  | <b>60.0%</b>  |
| Koringberg     | 1000%        | 0.0%                    | 0.0%                   | <b>33.3%</b> | 91.7%        | 0.0%                    | 0.0%                   | <b>30.6%</b>  | 100.0%       | 8.3%                    | 0.0%                   | <b>36.1%</b>  |
| Chatsworth     | 1000%        | 50.0%                   | 41.7%                  | <b>63.9%</b> | 100.0%       | 66.7%                   | 50.0%                  | <b>72.2%</b>  | 100.0%       | 66.7%                   | 25.0%                  | <b>63.9%</b>  |
| Kalbaskraal    | 100.0%       | 83.3%                   | N/A                    | <b>91.7%</b> | 91.7%        | 100.0%                  | N/A                    | <b>95.8%</b>  | 100.0%       | 100.0%                  | N/A                    | <b>100.0%</b> |
| Riebeek Valley | 100.0%       | 100.0%                  | 33.3%                  | <b>77.8%</b> | 100.0%       | 100.0%                  | 100.0%                 | <b>100.0%</b> | 100.0%       | 100.0%                  | 100.0%                 | <b>100.0%</b> |
| <b>Total</b>   | <b>94.0%</b> | <b>70.2%</b>            | <b>55.6%</b>           | <b>74.2%</b> | <b>90.5%</b> | <b>70.2%</b>            | <b>61.1%</b>           | <b>74.6%</b>  | <b>95.2%</b> | <b>72.6%</b>            | <b>52.8%</b>           | <b>74.5%</b>  |

### C.4.3. Incident Management

Swartland Municipality's Maintenance Team mainly performs their own repair and preventative maintenance work to the equipment and infrastructure of the Municipality, except when specialised repair work is required, in which case the work is sub-contracted to approved sub-contractors on the municipal database.

A Water Safety Plan was drafted during the 2021/2022 financial year by the West Coast District Municipality for the Swartland bulk water distribution system. Swartland Municipality drafted a Water Safety Plan for their internal network distribution systems during 2022/2023. A detailed risk assessment was executed as part of the process and the existing control measures implemented by Swartland Municipality and the West Coast District Municipality were evaluated as part of the process. An Improvement / Upgrade Plan is also in place with relevant Water and Safety Management Procedures for implementation.

The graph below provides an overview of the medium residual risks for the Swartland bulk water distribution system.

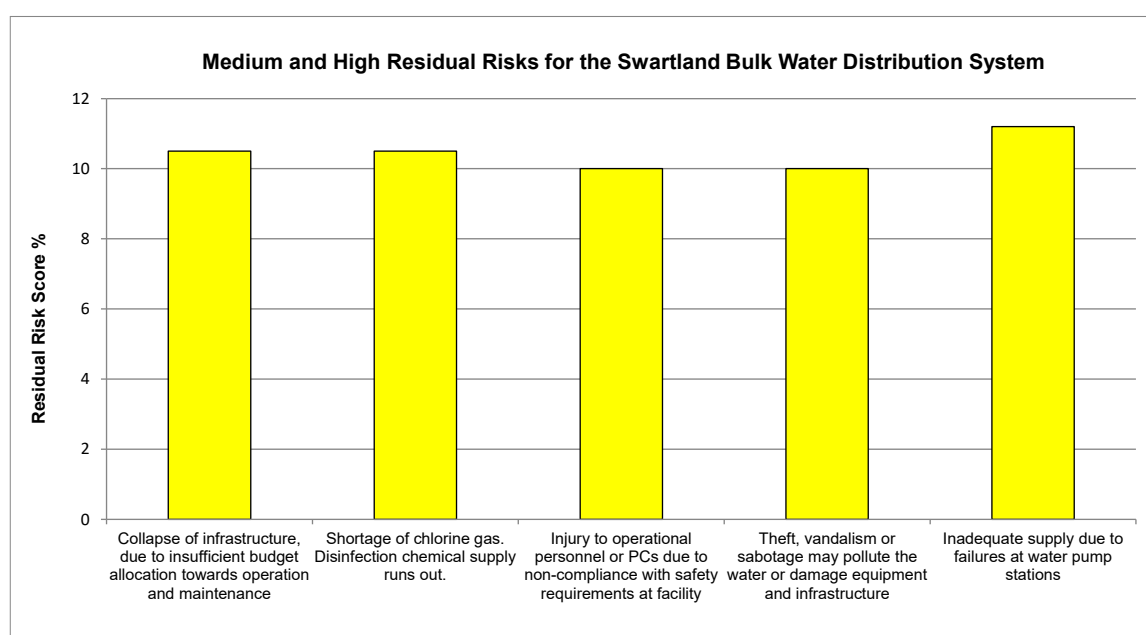


Figure C4.3.1: Medium residual risks for the Swartland Bulk water distribution system

The graph below provides an overview of the medium residual risks for the Withoogte bulk water distribution system.

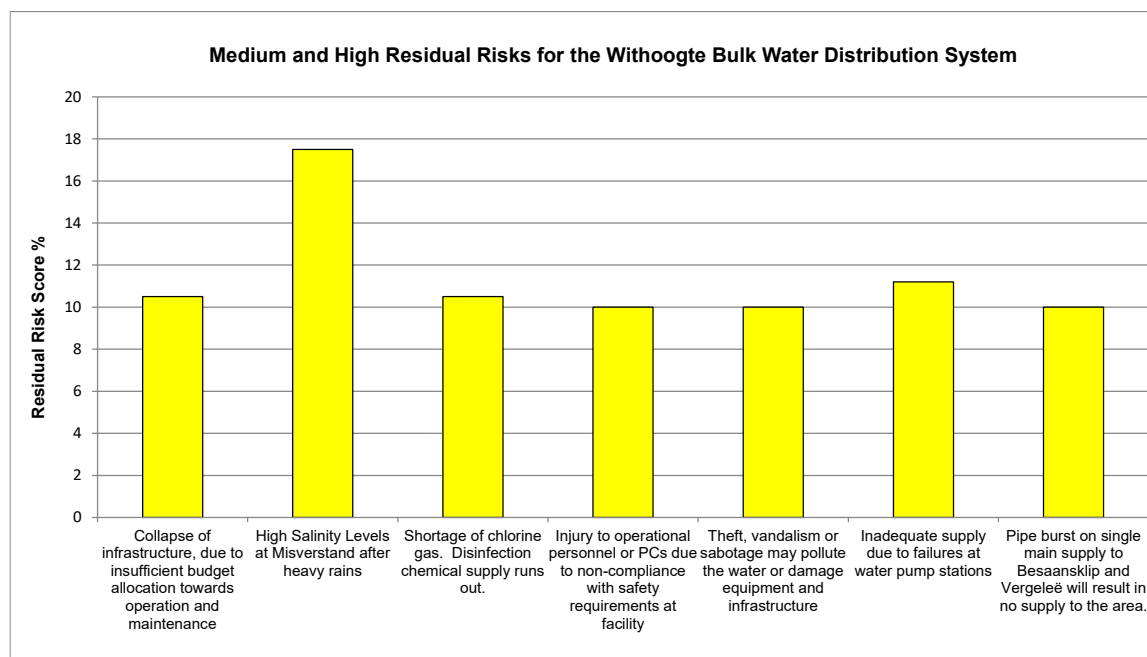


Figure C4.3.2: Medium residual risks for the Withoogte Bulk water distribution system

The graph below provides an overview of the medium residual risks for Swartland Municipality's internal water distribution systems.

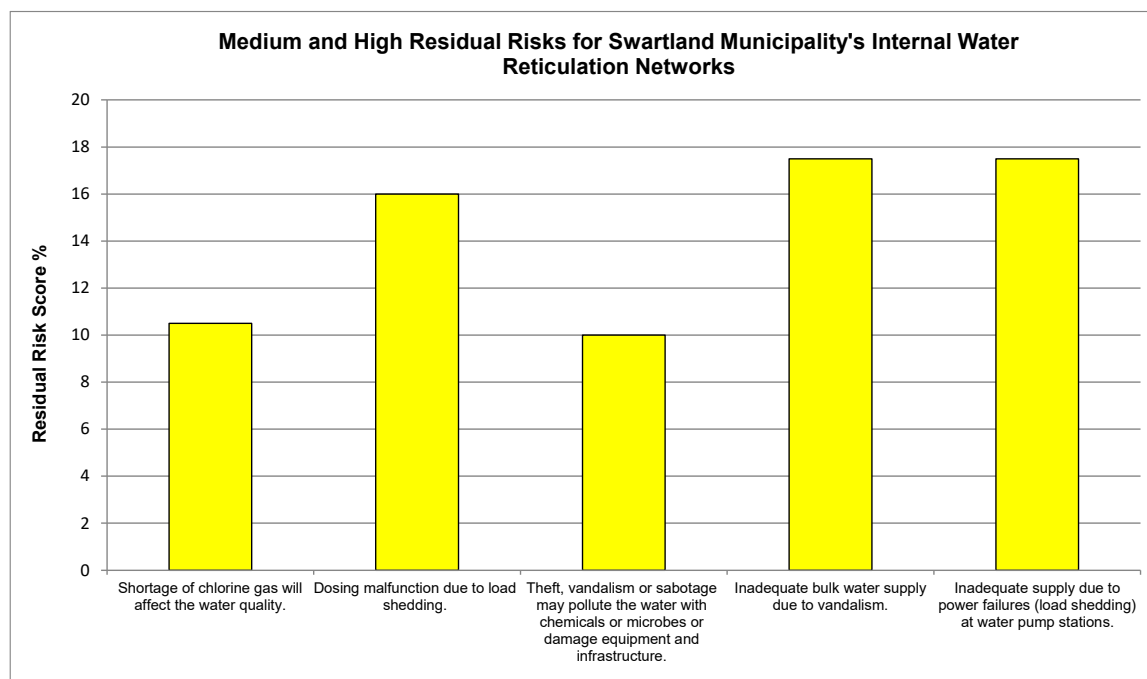


Figure C.4.3.3: Medium residual risks for Swartland Municipality's internal water distribution systems.

Detail WWTW Process Audits were compiled for all the WWTWs during the last financial year. The W2RAPs for the various WWTWs and sewer drainage networks were also updated. The W2RAP is an all-inclusive risk analysis tool by which risks associated with the management of collection, treatment and disposal of wastewater, are identified and rated (quantified). The identified risks can then be managed according to its



potential impacts on the receiving environment / community / resource. A detailed risk assessment was executed as part of the W<sub>2</sub>RAP process and the existing control measures implemented by Swartland Municipality were evaluated as part of the process. An Improvement / Upgrade Plan was put in place with relevant Wastewater and Safety Management Procedures for any type of incident. The table below gives an overview of the Medium and High Risks for the various WWTWs and sewer drainage networks, as included in the updated W<sub>2</sub>RAPs.

| <b>Table C.4.3.1: Medium and High risks for the various WWTWs and sewer drainage networks</b>                                                                                                                                                                                                                                                         |                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <b>Identified Hazards / Risks</b>                                                                                                                                                                                                                                                                                                                     | <b>Residual Risk</b> |
| <b>Malmesbury WWTW and Malmesbury and Abbotsdale sewer drainage networks</b>                                                                                                                                                                                                                                                                          |                      |
| Infrastructure failure on sewer network, at pump stations and at WWTW, due to insufficient budget allocation towards operation and maintenance.                                                                                                                                                                                                       | Medium               |
| Infrastructure failure, due to lack of maintenance work carried out and implementation of a Maintenance Plan.                                                                                                                                                                                                                                         | Medium               |
| Fats and oils from restaurants interfere with biological processes at WWTW                                                                                                                                                                                                                                                                            | Medium               |
| 1) Quality of industrial effluent discharged not in compliance with "effluent discharged from industrial consumers" quality standards 2) Uncontrolled discharge of Inorganic / Organic chemicals into the sewer system which can damage the sewer system. 3) High organic loads occur at the WWTW affecting the treatment processes.                  | Medium               |
| Injury to operators, because cranes and hoists are not service yearly.                                                                                                                                                                                                                                                                                | Medium               |
| Injury to PCs and Operators, because of a lack of required training                                                                                                                                                                                                                                                                                   | Medium               |
| Disruption of treatment process due to load shedding.                                                                                                                                                                                                                                                                                                 | Medium               |
| Non-compliance with final effluent standards, because one SST is currently not operational (Bulking of sludge)                                                                                                                                                                                                                                        | Medium               |
| Pollution of River (No upstream and downstream monitoring implemented)                                                                                                                                                                                                                                                                                | Medium               |
| Illness when irrigation water is used for drinking purposes (Safety Signage)                                                                                                                                                                                                                                                                          | Medium               |
| <b>Moorreesburg WWTW and sewer drainage network</b>                                                                                                                                                                                                                                                                                                   |                      |
| Infrastructure failure on sewer network, at pump stations and at WWTW, due to insufficient budget allocation towards operation and maintenance.                                                                                                                                                                                                       | Medium               |
| Infrastructure failure, due to lack of maintenance work carried out and implementation of a Maintenance Plan (Take too long to repair equipment and lacking records of maintenance work carried out).                                                                                                                                                 | Medium               |
| Fats and oils from restaurants interfere with biological processes at WWTW                                                                                                                                                                                                                                                                            | Medium               |
| 1) Quality of industrial effluent discharged not in compliance with "effluent discharged from industrial consumers" quality standards (Abattoir) 2) Uncontrolled discharge of Inorganic / Organic chemicals into the sewer system which can damage the sewer system. 3) High organic loads occur at the WWTW affecting the treatment processes.       | Medium               |
| Injury to PCs and Operators, because of a lack of required training                                                                                                                                                                                                                                                                                   | Medium               |
| Pollution of River (No upstream and downstream monitoring implemented)                                                                                                                                                                                                                                                                                | Medium               |
| Illness when irrigation water is used for drinking purposes (Safety Signage)                                                                                                                                                                                                                                                                          | Medium               |
| <b>Darling WWTW and sewer drainage network</b>                                                                                                                                                                                                                                                                                                        |                      |
| Inadequate Process Control: Not able to meet new Regulation 3630 requirements w.r.t. the number of Process Controllers.                                                                                                                                                                                                                               | Medium               |
| Infrastructure failure on sewer network, at pump stations and at WWTW, due to insufficient budget allocation towards operation and maintenance.                                                                                                                                                                                                       | Medium               |
| Infrastructure failure, due to lack of maintenance work carried out and implementation of a Maintenance Plan.                                                                                                                                                                                                                                         | Medium               |
| Fats and oils from restaurants interfere with biological processes at WWTW                                                                                                                                                                                                                                                                            | Medium               |
| 1) Quality of industrial effluent discharged not in compliance with "effluent discharged from industrial consumers" quality standards (Darling Romery) 2) Uncontrolled discharge of Inorganic / Organic chemicals into the sewer system which can damage the sewer system. 3) High organic loads occur at the WWTW affecting the treatment processes. | Medium               |
| Flooding of inlet works at WWTW, due to rainwater infiltration into sewer drainage network.                                                                                                                                                                                                                                                           | Medium               |
| Injury to PCs and Operators, because of a lack of required training                                                                                                                                                                                                                                                                                   | Medium               |
| Disruption of treatment process due to load shedding. Installed Generator is not operational.                                                                                                                                                                                                                                                         | Medium               |
| Non-compliance with final effluent standard due to inadequate plant capacity                                                                                                                                                                                                                                                                          | Medium               |
| Drowning risk at anaerobic ponds                                                                                                                                                                                                                                                                                                                      | Medium               |
| Final clarification appears to be problematic. Sludge carryover occurs, excessive scum on surface.                                                                                                                                                                                                                                                    | Medium               |
| Illness when irrigation water is used for drinking purposes (Safety Signage)                                                                                                                                                                                                                                                                          | Medium               |
| <b>Riebeek Valley WWTW and Riebeek Kasteel, Riebeek West and Ongegund sewer drainage networks</b>                                                                                                                                                                                                                                                     |                      |
| Infrastructure failure on sewer network, at pump stations and at WWTW, due to insufficient budget allocation towards operation and maintenance.                                                                                                                                                                                                       | Medium               |
| Infrastructure failure, due to lack of maintenance work carried out and implementation of a Maintenance Plan (Lacking records of maintenance work carried out).                                                                                                                                                                                       | Medium               |
| Fats and oils from restaurants interfere with biological processes at WWTW                                                                                                                                                                                                                                                                            | Medium               |

| Table C.4.3.1: Medium and High risks for the various WWTWs and sewer drainage networks                                                                                                                                                                                                                                                                                                   |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Identified Hazards / Risks                                                                                                                                                                                                                                                                                                                                                               | Residual Risk |
| 1) Quality of industrial effluent discharged not in compliance with "effluent discharged from industrial consumers" quality standards (Increased number of Wine Cellars and Distilleries) 2) Uncontrolled discharge of Inorganic / Organic chemicals into the sewer system which can damage the sewer system. 3) High organic loads occur at the WWTW affecting the treatment processes. | Medium        |
| Safety risks to staff, because lack of first aid kit and emergency equipment and PPE.                                                                                                                                                                                                                                                                                                    | Medium        |
| Injury to PCs and Operators, because of a lack of required training                                                                                                                                                                                                                                                                                                                      | Medium        |
| Illegal entry, vandalism and theft. No security at gate and gate is not electronically controlled.                                                                                                                                                                                                                                                                                       | Medium        |
| Non-compliance with final effluent standards, because maturation ponds are overgrown with vegetation and needs to be desludge.                                                                                                                                                                                                                                                           | Medium        |
| Koringberg WWTW and sewer drainage network                                                                                                                                                                                                                                                                                                                                               |               |
| Final effluent not meeting required standards due to the current flow that exceed the design capacity by about three times (General Limits: Failure w.r.t. COD, Faecal Coliforms, Orthophosphates, Ammonia, EC and TSS).                                                                                                                                                                 | Medium        |
| Stability of embankments: Overgrown vegetation on embankments damage ponds.                                                                                                                                                                                                                                                                                                              | Medium        |
| Inefficient / inadequate / inappropriate Process Control, due to lack of documentation available at works (WULA, SOPs, O&M Manuals, Incident recording, Maintenance work carried out, etc.)                                                                                                                                                                                              | Medium        |
| Flow and load variations that exceed the design limits, which result in final effluent not meeting required standards                                                                                                                                                                                                                                                                    | Medium        |
| Final effluent not complying with quality standards. Debris end up in Primary Pond, due to no screen.                                                                                                                                                                                                                                                                                    | Medium        |
| Stability of embankments: Banks of primary ponds are overgrown with grass and weeds.                                                                                                                                                                                                                                                                                                     | Medium        |
| Unauthorised overflow from secondary ponds                                                                                                                                                                                                                                                                                                                                               | High          |
| Stability of embankments. Banks of secondary ponds are overgrown with grass and weeds                                                                                                                                                                                                                                                                                                    | Medium        |
| The ponds are filling up with sludge and silt over time, which impact on the capacity of the plant and the quality of the effluent.                                                                                                                                                                                                                                                      | Medium        |
| Kalbaskraal WWTW and sewer drainage network                                                                                                                                                                                                                                                                                                                                              |               |
| Final effluent not meeting General Limit standards due to the current oxidation pond process (General Limits: Failure w.r.t. COD, Faecal Coliforms, Orthophosphates, Ammonia, EC and TSS).                                                                                                                                                                                               | Medium        |
| Stability of embankments. Overgrown vegetation on embankments damage ponds                                                                                                                                                                                                                                                                                                               | Medium        |
| Spillages at sewer pump stations, due to large foreign objects that cause damage to pump impellers.                                                                                                                                                                                                                                                                                      | Medium        |
| Inefficient / inadequate / inappropriate Process Control, due to lack of documentation available at works (WULA, SOPs, O&M Manuals, Incident recording, Maintenance work carried out, etc.)                                                                                                                                                                                              | Medium        |
| Stability of embankments. Banks of primary ponds are overgrown with grass and weeds                                                                                                                                                                                                                                                                                                      | Medium        |
| Stability of embankments. Banks of secondary ponds are overgrown with grass and weeds                                                                                                                                                                                                                                                                                                    | Medium        |
| The ponds are filling up with sludge and silt over time, which impact on the capacity of the plant and the quality of the effluent.                                                                                                                                                                                                                                                      | Medium        |
| Chatsworth WWTW and Chatsworth and Riverlands sewer drainage networks                                                                                                                                                                                                                                                                                                                    |               |
| Final effluent not meeting General Limit standards due to the current oxidation pond process (General Limits: Failure w.r.t. COD, Faecal Coliforms, Orthophosphates, Ammonia, EC and TSS).                                                                                                                                                                                               | Medium        |
| Stability of embankments. Overgrown vegetation on embankments damage ponds                                                                                                                                                                                                                                                                                                               | Medium        |
| Spillages at sewer pump stations, due to large foreign objects that cause damage to pump impellers                                                                                                                                                                                                                                                                                       | Medium        |
| Inefficient / inadequate / inappropriate Process Control, due to lack of documentation available at works (WULA, SOPs, O&M Manuals, Incident recording, Maintenance work carried out, etc.)                                                                                                                                                                                              | Medium        |
| Flow and load variations that exceed the design limits, which result in final effluent not meeting required standards                                                                                                                                                                                                                                                                    | Medium        |
| Stability of embankments. Banks of primary ponds are overgrown with grass and weeds                                                                                                                                                                                                                                                                                                      | Medium        |
| Stability of embankments. Banks of secondary ponds are overgrown with grass and weeds                                                                                                                                                                                                                                                                                                    | Medium        |
| The ponds are filling up with sludge and silt over time, which impact on the capacity of the plant and the quality of the effluent.                                                                                                                                                                                                                                                      | Medium        |

The Water Safety Plan and W<sub>2</sub>RAP Teams of Swartland Municipality are committed to meet regularly to review the implementation of all the aspects of the Water Safety Plan and W<sub>2</sub>RAPs to ensure that they are still accurate and to determine whether the field assessments need updates or modifications and whether the Incident Response Management Protocol is still adequate. In addition to the regular review, the Water Safety Plan and W<sub>2</sub>RAPs will also be reviewed when, for example, a new water source is developed, major treatment improvements are planned and brought into use, or after a major incident.

Incident Response Management Protocols is in place and forms part of the Water Safety Plans and W<sub>2</sub>RAPs. The Incident Response Management Protocols entail that certain reactive procedures are followed when an incident occurs, such as when a malfunction of the treatment processes occurs due to power failures, faulty equipment, adverse weather conditions or human error.

Operational Alert Levels are also in place for the WTWs and WWTWs in order to ensure that the various unit processes in the plant performs optimally. If these pre-determined Alert Levels are exceeded at any of the control points where samples are taken for operational purposes, specific actions are taken to bring the operational parameters back to within the target ranges.

Operational and Compliance Water Quality Monitoring Programmes, which meet the requirements of SANS241:2015, and Wastewater Quality Monitoring Programmes, which meet the licence requirements for the various WWTWs, are actively implemented by the Municipality.

**Table C.4.3.2: Incident Management and Reporting Overview**

| WSDP Ref # | Measurable / Enabling Factor          | Unit                   | Year 0    | Year - 1  | Year - 2  |
|------------|---------------------------------------|------------------------|-----------|-----------|-----------|
|            |                                       |                        | FY2024/25 | FY2023/24 | FY2022/23 |
| 6.3        | Water Supply and Quality              |                        |           |           |           |
| 6.3.1      | Incident Management Protocol in place | yes/total schemes in % | Yes       | Yes       | Yes       |
| 6.3.5      | Failure Response Management in place  | yes/total schemes in % | Yes       | Yes       | Yes       |
| 6.4        | Waste Water Supply and Quality        |                        |           |           |           |
| 6.4.1      | Incident Management Protocol in place | yes/total schemes in % | Yes       | Yes       | Yes       |
| 6.4.5      | Failure Response Management in place  | yes/total schemes in % | Yes       | Yes       | Yes       |

The water quality incident reporting compliance, as summarised in the table below, were calculated from the compliance sample results included in Annexure D.

**Table C.4.3.3: Water Quality Incident Reporting Compliance (Health Oriented)**

| Measurable / Enabling Factor  | Unit                  | Year 0                |                              |                | Year -1               |                              |                | Year-2                |                              |                |
|-------------------------------|-----------------------|-----------------------|------------------------------|----------------|-----------------------|------------------------------|----------------|-----------------------|------------------------------|----------------|
|                               |                       | FY2024/25             |                              |                | FY2023/24             |                              |                | FY2022/23             |                              |                |
|                               |                       | Acute Health Chemical | Acute Health Microbiological | Chronic Health | Acute Health Chemical | Acute Health Microbiological | Chronic Health | Acute Health Chemical | Acute Health Microbiological | Chronic Health |
| Failures in terms of Analysis | Total nr              | 95                    | 579                          | 961            | 95                    | 611                          | 982            | 93                    | 600                          | 973            |
|                               | Nr of failures        | 0                     | 9                            | 1              | 0                     | 7                            | 1              | 0                     | 10                           | 0              |
|                               | Failure %             | 0%                    | 2%                           | 0%             | 0%                    | 1%                           | 0%             | 0%                    | 2%                           | 0%             |
|                               | Nr reported           | 0                     | 9                            | 1              | 0                     | 7                            | 1              | 0                     | 10                           | 0              |
|                               | Reported % of failure | 100%                  | 100%                         | 100%           | 100%                  | 100%                         | 100%           | 100%                  | 100%                         | 100%           |
| Failures in terms of Samples  | Total                 | 95                    | 579                          | 961            | 95                    | 611                          | 982            | 93                    | 600                          | 973            |
|                               | Nr of failures        | 0                     | 9                            |                | 0                     | 7                            | 1              | 0                     | 10                           | 0              |
|                               | Failure %             | 0%                    | 2%                           | 0%             | 0%                    | 1%                           | 0%             | 0%                    | 2%                           | 0%             |
|                               | Nr reported           | 0                     | 9                            | 1              | 0                     | 7                            | 1              | 0                     | 10                           | 0              |
|                               | Reported % of failure | 100%                  | 100%                         | 100%           | 100%                  | 100%                         | 100%           | 100%                  | 100%                         | 100%           |
| Failures in terms of Sites    | Total                 | 95                    | 579                          | 961            | 95                    | 611                          | 982            | 93                    | 600                          | 973            |
|                               | Nr of failures        | 0                     | 9                            | 1              | 0                     | 7                            | 1              | 0                     | 10                           | 0              |
|                               | Failure %             | 0%                    | 2%                           | 0%             | 0%                    | 1%                           | 0%             | 0%                    | 2%                           | 0%             |
|                               | Nr reported           | 0                     | 9                            | 1              | 0                     | 7                            | 1              | 0                     | 10                           | 0              |
|                               | Reported % of failure | 100%                  | 100%                         | 100%           | 100%                  | 100%                         | 100%           | 100%                  | 100%                         | 100%           |

## C.5. Water Conservation and Water Demand Management

The table below gives an overview of the WC/WDM activities implemented by Swartland Municipality.

| Table C.5.1: Overview of WC/WDM Activities |                    |                                                                            |                   |            |          |            |          |            |                   |            |          |            |          |            |
|--------------------------------------------|--------------------|----------------------------------------------------------------------------|-------------------|------------|----------|------------|----------|------------|-------------------|------------|----------|------------|----------|------------|
| WSDP Ref. #                                | Regulations Ref. # | Description                                                                | Urban Settlements |            |          |            |          |            | Rural Settlements |            |          |            |          |            |
|                                            |                    |                                                                            | Year 0            |            | Year - 1 |            | Year - 2 |            | Year 0            |            | Year - 1 |            | Year - 2 |            |
|                                            |                    |                                                                            | 2024/25           |            | 2023/24  |            | 2022/23  |            | 2024/25           |            | 2023/24  |            | 2022/23  |            |
| 7.1.1                                      | 10.2.g.iii         | REDUCING UNACCOUNTED FOR WATER AND WATER INEFFICIENCIES                    |                   |            |          |            |          |            |                   |            |          |            |          |            |
|                                            |                    | Number of customers where the following activities have been pursued:      | Nr                | % of total | Nr       | % of total | Nr       | % of total | Nr                | % of total | Nr       | % of total | Nr       | % of total |
| 7.1.1.1                                    |                    | Night flow metering                                                        | 0                 | 0%         | 0        | 0%         | 0        | 0%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.1.2                                    |                    | Day flow metering                                                          | 23 681            | 100%       | 23 449   | 100%       | 23 168   | 100%       | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.1.3                                    |                    | Reticulation leaks fixed                                                   | 290               | 100%       | 360      | 100%       | 290      | 100%       | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.1.4                                    |                    | Illegal connections formalized                                             | 0                 | 0%         | 0        | 0%         | 0        | 0%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.1.5                                    |                    | Un-metered connections, metered                                            | 0                 | 0%         | 0        | 0%         | 0        | 0%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.2                                      | 10.2.g.iii         | REDUCING HIGH PRESSURES FOR RESIDENTIAL CONSUMERS                          |                   |            |          |            |          |            |                   |            |          |            |          |            |
|                                            |                    | Number of residential consumers with water supply pressure of:             | Nr                | % of total | Nr       | % of total | Nr       | % of total | Nr                | % of total | Nr       | % of total | Nr       | % of total |
| 7.1.2.1                                    |                    | < 300 kPa                                                                  | 5 077             | 23.0%      | 5 031    | 23.0%      | 4 967    | 23.0%      | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.2.2                                    |                    | 300 kPa - 600 kPa                                                          | 7 174             | 32.5%      | 7 109    | 32.5%      | 7 019    | 32.5%      | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.2.3                                    |                    | 600 kPa - 900 kPa                                                          | 8 830             | 40.0%      | 8 749    | 40.0%      | 8 638    | 40.0%      | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.2.4                                    | 10.2.b.iii         | > 900 kPa                                                                  | 993               | 4.5%       | 984      | 4.5%       | 972      | 4.5%       | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.3                                      | 10.2.g.iii         | LEAK AND METER REPAIR PROGRAMMES                                           |                   |            |          |            |          |            |                   |            |          |            |          |            |
|                                            |                    | Number of consumer units targeted by:                                      | Nr                | % of total | Nr       | % of total | Nr       | % of total | Nr                | % of total | Nr       | % of total | Nr       | % of total |
| 7.1.3.1                                    |                    | Leak repair assistance programme                                           | 0                 | 0%         | 0        | 0%         | 0        | 0%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.3.2                                    | 10.2.g.iv          | Retro-fitting of water inefficient toilets                                 | 0                 | 0%         | 0        | 0%         | 0        | 0%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.3.3                                    |                    | Meter repair programme                                                     | 186               | 1%         | 598      | 3%         | 224      | 1%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.4                                      | 10.2.g.iii         | CONSUMER / END-USE DEMAND MANAGEMENT: PUBLIC INFO AND EDUCATION PROGRAMMES |                   |            |          |            |          |            |                   |            |          |            |          |            |
|                                            |                    |                                                                            | Nr                | % of total | Nr       | % of total | Nr       | % of total | Nr                | % of total | Nr       | % of total | Nr       | % of total |
| 7.1.4.1                                    |                    | Number of schools targeted by education programmes                         | 0                 | 0%         | 0        | 0%         | 0        | 0%         | 0                 | 0%         | 0        | 0%         | 0        | 0%         |
| 7.1.4.2                                    |                    | Number of consumers targeted by public information programmes              | 23 681            | 100%       | 23 449   | 100%       | 23 168   | 100%       | 0                 | 0%         | 0        | 0%         | 0        | 0%         |

### Quantity of water unaccounted for (MI/year):

Swartland Municipality's 2024/2025 performance with regard to the Key Performance Indicators included in the Revised Compulsory National Water and Sanitation Standards, as published in the Government Gazette No.52814 of 6 June 2025, is indicated in the table below for the various water distribution systems.

| Table C.5.2: Swartland Municipality's performance with regard to the WC/WDM KPIs for 2024/2025 |                |                           |                |                                     |
|------------------------------------------------------------------------------------------------|----------------|---------------------------|----------------|-------------------------------------|
| Water Distribution System                                                                      | NRW<br>20%-30% | Water Losses<br>10% - 20% | ILI 2 - 4      | Per Capita Usage<br>120 – 180 l/c/d |
| Koringberg                                                                                     | 17.5%          | 14.9%                     | 1.40           | 64.6                                |
| Ongegund                                                                                       | 19.0%          | 18.0%                     | Not calculated | 41.0                                |
| Riebeek Wes                                                                                    | 12.1%          | 5.8%                      | 0.41           |                                     |
| Riebeek Kasteel                                                                                | 29.2%          | 27.9%                     | 3.03           | 60.4                                |
| Yzerfontein                                                                                    | 12.6%          | 8.8%                      | 0.53           | 273.9                               |
| Darling                                                                                        | 25.3%          | 24.0%                     | 3.23           | 72.1                                |
| Moorreesburg                                                                                   | 30.0%          | 28.0%                     | 3.00           | 55.5                                |
| Malmesbury                                                                                     | 22.0%          | 18.9%                     | 2.71           | 60.6                                |
| <b>Swartland Municipality</b>                                                                  | <b>23.0%</b>   | <b>20.8%</b>              | <b>2.67</b>    | <b>62.5</b>                         |

Note: Comply with KPI / Do not comply with KPI

The implementation of Swartland Municipality's Water Demand Management Strategy has been extremely successful, and the Municipality was able to reduce the water requirements of the towns significantly. The average annual water requirement growth over the period 2001/2002 to 2024/2025 was 1.98 %/a. The table below gives a summary of the NRW, Water Losses and ILI for the various water distribution systems in Swartland Municipality's Management Area.

| Table C.5.3: NRW, Water Losses and ILIs for the various water distribution systems                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                           |            |         |                      |         |        |        |        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------|----------------------|---------|--------|--------|--------|
| Description                                                                                                                                                                                                                                                                                                                      | Component                                                                                                                                                                                                                                                                                                                                                                                                 | Unit       | 24/25   | Record: Prior (MI/a) |         |        |        |        |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           |            |         | 23/24                | 22/23   | 21/22  | 20/21  | 19/20  |
| Koringberg                                                                                                                                                                                                                                                                                                                       | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 12.014  | 7.382                | 7.337   | 12.099 | 13.395 | 16.976 |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 17.5%   | 13.1%                | 13.5%   | 21.8%  | 23.7%  | 32.7%  |
|                                                                                                                                                                                                                                                                                                                                  | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 10.257  | 5.649                | 5.608   | 10.368 | 12.634 | 16.224 |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 14.9%   | 10.0%                | 10.4%   | 18.7%  | 22.4%  | 31.3%  |
|                                                                                                                                                                                                                                                                                                                                  | ILI                                                                                                                                                                                                                                                                                                                                                                                                       |            | 1.40    | 0.79                 | 0.83    | 1.51   | 1.80   | 1.59   |
|                                                                                                                                                                                                                                                                                                                                  | The NRW and Water Losses increased during the last financial year, but are still at excellent levels. The Municipality needs to continue with the implementation of their WC/WDM measures in order to keep the NRW and water losses percentages for Koringberg below 20%. The ILI of 1.40 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2. |            |         |                      |         |        |        |        |
| Ongegund                                                                                                                                                                                                                                                                                                                         | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 4.261   | 4.822                | 1.260   | 9.214  | 3.075  | 4.236  |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 19.0%   | 20.5%                | 5.9%    | 38.4%  | 17.4%  | 24.9%  |
|                                                                                                                                                                                                                                                                                                                                  | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 4.036   | 4.595                | 1.037   | 8.986  | 2.968  | 4.130  |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 18.0%   | 19.5%                | 4.9%    | 37.4%  | 16.8%  | 24.2%  |
|                                                                                                                                                                                                                                                                                                                                  | The NRW and Water Losses decreased slightly during the last financial year, which is excellent. The NRW is below DWS's NRW target of 30%. The Municipality needs to keep the NRW and water losses percentages for Ongegund less than 20%.                                                                                                                                                                 |            |         |                      |         |        |        |        |
| Riebeek Wes                                                                                                                                                                                                                                                                                                                      | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 23.121  | 21.053               | 19.802  | 18.314 | 26.490 | 22.040 |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 12.1%   | 11.3%                | 11.2%   | 10.2%  | 15.5%  | 14.0%  |
|                                                                                                                                                                                                                                                                                                                                  | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 11.038  | 8.982                | 7.749   | 6.255  | 21.468 | 17.044 |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 5.8%    | 4.8%                 | 4.4%    | 3.5%   | 12.6%  | 10.8%  |
|                                                                                                                                                                                                                                                                                                                                  | ILI                                                                                                                                                                                                                                                                                                                                                                                                       |            | 0.41    | 0.33                 | 0.29    | 0.23   | 0.80   | 0.82   |
| The NRW and Water Losses are at excellent levels and stayed roughly the same for the last four financial years. The Municipality needs to keep the NRW below 15% and the water losses below 10%. The ILI of 0.41 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2. |                                                                                                                                                                                                                                                                                                                                                                                                           |            |         |                      |         |        |        |        |
| Riebeek Kasteel                                                                                                                                                                                                                                                                                                                  | NRW                                                                                                                                                                                                                                                                                                                                                                                                       | Volume     | 113.126 | 146.401              | 153.504 | 98.088 | 52.790 | 47.762 |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 29.2%   | 35.9%                | 38.6%   | 29.6%  | 20.6%  | 21.4%  |
|                                                                                                                                                                                                                                                                                                                                  | Water Losses                                                                                                                                                                                                                                                                                                                                                                                              | Volume     | 108.390 | 141.626              | 148.749 | 93.466 | 50.693 | 45.732 |
|                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                           | Percentage | 27.9%   | 34.8%                | 37.4%   | 28.2%  | 19.8%  | 20.5%  |
|                                                                                                                                                                                                                                                                                                                                  | ILI                                                                                                                                                                                                                                                                                                                                                                                                       |            | 3.03    | 3.99                 | 4.21    | 2.72   | 1.45   | 1.52   |

| Table C.5.3: NRW, Water Losses and ILIs for the various water distribution systems |                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |           |                     |         |           |           |         |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|---------------------|---------|-----------|-----------|---------|
| Description                                                                        | Component                                                                                                                                                                                                                                                                                                                                                                                                                             | Unit       | 24/25     | Record: Prior (M/a) |         |           |           |         |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |           | 23/24               | 22/23   | 21/22     | 20/21     | 19/20   |
|                                                                                    | The NRW and Water Losses further decreased during the last financial year, which is excellent. The current NRW is now below DWS's NRW target of 30%. The Municipality needs to keep the NRW below 30% and needs to work towards a target of 25% for the water losses. The ILI value of 3.03 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                             |            |           |                     |         |           |           |         |
| Yzerfontein                                                                        | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 44.226    | 65.361              | 24.725  | 40.333    | 60.201    | 47.109  |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 12.6%     | 19.2%               | 8.2%    | 13.1%     | 20.1%     | 19.8%   |
|                                                                                    | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 30.925    | 52.080              | 11.526  | 27.117    | 54.562    | 41.593  |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 8.8%      | 15.3%               | 3.8%    | 8.80%     | 18.2%     | 17.5%   |
|                                                                                    | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 0.53      | 0.85                | 0.21    | 0.50      | 1.03      | 0.97    |
|                                                                                    | The NRW and Water Losses decreased during the last financial year, which is excellent. The current percentages of NRW below 20% and Water Losses below 15% are at very low levels and below DWS's NRW target of 30%. The Municipality needs to keep the NRW below 20% and the water losses below 15%. The ILI of 0.53 is excellent, with no immediate intervention required and the Municipality needs to keep the ILI level below 2. |            |           |                     |         |           |           |         |
| Darling                                                                            | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 158.894   | 41.311              | -6.984  | 150.430   | 150.505   | 138.078 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 25.3%     | 7.8%                | -1.5%   | 25.0%     | 26.4%     | 26.7%   |
|                                                                                    | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 150.617   | 33.229              | -14.918 | 142.205   | 146.555   | 134.234 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 24.0%     | 6.3%                | -3.3%   | 23.6%     | 25.7%     | 25.9%   |
|                                                                                    | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 3.23      | 0.72                | 2.82    | 3.09      | 3.20      | 2.08    |
|                                                                                    | The NRW and water losses for the last financial year were higher and roughly at the same level as it were over the period 2019/2020 to 2021/2022. The Municipality needs to keep the NRW below 30% and needs to work towards a target of 20% for the water losses. The ILI value of 3.23 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                                |            |           |                     |         |           |           |         |
| Moorreesburg                                                                       | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 242.757   | 215.211             | 196.685 | 169.718   | 136.476   | 119.301 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 30.0%     | 28.6%               | 27.4%   | 24.5%     | 20.3%     | 20.2%   |
|                                                                                    | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 226.199   | 198.765             | 180.308 | 153.392   | 129.156   | 112.145 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 28.0%     | 26.4%               | 25.1%   | 22.1%     | 19.2%     | 19.0%   |
|                                                                                    | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 3.00      | 2.64                | 2.40    | 2.06      | 1.74      | 1.36    |
|                                                                                    | The NRW and Water Losses increased slightly during the last financial year. The NRW is currently at DWS's NRW target of 30%. The Municipality needs to keep the NRW below 30% and needs to work towards a target of 20% for the water losses. The ILI value of 3.00 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                                                     |            |           |                     |         |           |           |         |
| Malmesbury                                                                         | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 802.683   | 668.245             | 459.356 | 755.496   | 595.795   | 379.300 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 22.0%     | 20.1%               | 15.0%   | 23.4%     | 20.3%     | 15.0%   |
|                                                                                    | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 728.077   | 594.275             | 385.917 | 681.709   | 562.994   | 347.331 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 20.0%     | 17.9%               | 12.6%   | 21.1%     | 19.2%     | 13.8%   |
|                                                                                    | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 2.71      | 2.23                | 1.46    | 2.67      | 2.20      | 1.44    |
|                                                                                    | The NRW and Water Losses increased slightly during the last financial year, but the NRW is still below DWS's NRW target of 30%. The Municipality needs to keep the NRW below 25% and the water losses below 15%. The ILI value of 2.71 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.                                                                                  |            |           |                     |         |           |           |         |
| All Systems                                                                        | NRW                                                                                                                                                                                                                                                                                                                                                                                                                                   | Volume     | 1 401.333 | 1 169.786           | 855.685 | 1 253.692 | 1 038.727 | 774.802 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 23.0%     | 20.8%               | 16.5%   | 23.1%     | 20.9%     | 18.0%   |
|                                                                                    | Water Losses                                                                                                                                                                                                                                                                                                                                                                                                                          | Volume     | 1 269.789 | 1 039.201           | 725.976 | 1 123.498 | 981.030   | 718.433 |
|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage | 20.8%     | 18.5%               | 14.0%   | 20.7%     | 19.7%     | 16.6%   |
|                                                                                    | ILI                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | 2.67      | 2.17                | 1.83    | 2.40      | 2.11      | 1.60    |
|                                                                                    | The overall NRW and Water Losses further increased during the last financial year, mainly because of the increase in the NRW and Water Losses of Malmesbury and Darling. The Municipality needs to keep the NRW below 25% and needs to work towards a target of 15% for the water losses. The ILI value of 2.67 is good and no urgent action is required, but the NRW and Water Losses should however be monitored carefully.         |            |           |                     |         |           |           |         |

Note: Infrastructure Leakage Index (ILI) for Developed Countries = 1 – 2 Excellent (Category A), 2 – 4 Good (Category B), 4 – 8 Poor (Category C) and > 8 – Very Bad (Category D)

Category A = No specific intervention required.

Category B = No urgent action required although should be monitored carefully.

Category C = Requires attention

Category D = Requires immediate water loss reduction interventions



The Infrastructure Leakage Index (ILI) is also included in the above table, which is the most recent and preferred performance indicator for comparing leakage from one system to another. It is a non-dimensional index representing the ratio of the current real leakage and the “Unavoidable Annual Real Losses”. A high ILI value indicates a poor performance with large potential for improvement while a small ILI value indicates a well-managed system with less scope for improvement. The parameters used to calculate the ILIs for the various distribution systems are included in the Models in Annexure B. Attaining an ILI = 1 is a theoretical limit which is the minimum water loss in an operational water reticulation system. A value of less than 1 should not occur since this implies that the actual leakage is less than the theoretical minimum level of leakage.

The 2025 No Drop Score for Swartland Municipality is not yet available and the 2023 No Drop Score is still the latest score, as published by the DWS. The 2023 No Drop assessments were performed using a reduced set of No Drop Criteria. These criteria were selected to assess a WSA’s understanding of their WC/WDM status, the plans, strategies, budgets, and implementation of remedial projects. Below is a brief description of the Criteria used for the 2023 assessment.

| Table C.5.4: Description of No Drop Criteria |                                                                                                                                                                          |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Criteria 1                                   | WC/WDM status quo, plans and strategies, budgets, and implementation of projects (Water Resource Diagram, Water Balance, Council approved WC/WDM strategies and budgets) |
| Criteria 2                                   | Asset management as it relates to meter replacement.<br>Monitoring, analysis, and action of high loss District Metered Areas (DMAs) in metropolitan municipalities       |
| Criteria 3                                   | Technical skills of WC/WDM team                                                                                                                                          |
| Criteria 5                                   | Compliance and Performance based on the water loss and efficiency Key Performance Indicators (KPI) and year on year improvement there-of                                 |

The purpose of the 2023 No Drop Assessments was twofold:

- To complete the consultative assessment of the 144 WSAs as per the No Drop Requirements based on the 2021/22 financial year.
- To update the water balance and water loss benchmarking for the 2022/23 financial year. This is reported on in the Status of Water Loss, Water Use Efficiency and Non-Revenue Water in South African Municipalities (2012/13 to 2022/23).

The No Drop results for Swartland Municipality are presented in the table below.

| Table C.5.5: No Drop Performance of Swartland Municipality (DWS’s 2023 No Drop Report) |                 |                        |
|----------------------------------------------------------------------------------------|-----------------|------------------------|
| No Drop Score (2021/2022)                                                              |                 | 91%                    |
| Criteria                                                                               | Weight          | Score                  |
| 1: WC/WDM Strategy, Planning and Implementation                                        | 45%             | 100% (Excellent)       |
| 2: Asset Management                                                                    | 10%             | 40% (Poor)             |
| 3: Technical Skills                                                                    | 10%             | 80% (Good)             |
| 5: Compliance and Performance                                                          | 35%             | 69% (Average)          |
| <b>Weighted Sub-Total</b>                                                              |                 | <b>81%</b>             |
| Bonus                                                                                  |                 | 10%                    |
| <b>Score</b>                                                                           |                 | <b>91% (Excellent)</b> |
| Penalty 1: No evidence of approved budget                                              |                 | 0.0%                   |
| Penalty 2: Section 82 of the Water Services Act                                        |                 | 0.0%                   |
| Criteria 1 Sub-Items: WC/WDM Strategy, Planning and Implementation                     |                 |                        |
| Item                                                                                   | Score (Max = 1) |                        |
| 1.1: Water Resources                                                                   | 1.0 (Excellent) |                        |
| 1.2: Water Balance                                                                     | 1.0 (Excellent) |                        |
| 1.2: WC/WDM Strategy and Business Plan                                                 | 1.0 (Excellent) |                        |
| Penalty 1: No evidence of approved budget                                              | 0.0             |                        |



| Criteria 5 Sub-Items: Compliance and Performance |                  |
|--------------------------------------------------|------------------|
| Item                                             | Score (Max = 1)  |
| 5.1: Reticulation Leak Repair                    | 1.0 (Excellent)  |
| 5.2: Physical Water Losses                       | 0.6 (Average)    |
| 5.3: Commercial Water Losses                     | 0.5 (Average)    |
| 5.4: Non-Revenue Water                           | 0.7 (Average)    |
| 5.5: Water Use Efficiency                        | 0.7 (Average)    |
| Water Balance Integrity                          | High (Excellent) |

**Regulatory Impression:** Swartland Municipality achieved an excellent score of 91% and should be congratulated on their WC/WDM efforts.

- The WSA is encouraged to ensure that the score is sustained. Swartland Municipality has demonstrated an excellent understanding of its water use situation and WC/WDM strategy.
- The IWA water balance included all the required components and covered the supply area. The integrity of the water balance was considered to be high.
- Proof of some consumer meter maintenance and replacements was provided, but an insufficient number of interventions were implemented during the 2021/22 audit period.
- There are staff at the WSA responsible for water loss management, but there were shortcomings in the team and/or the related documentation.
- The WSA provided evidence of a leak repair schedule for the audit period and the required percentage of incidents were addressed within the 48-hour response time.
- The regulator calculated the key performance indicators for physical water losses (ILI), commercial water losses, NRW, water use efficiencies based on the water balance.

The table below gives an overview of the System Input Volume, Average Billed Metered Consumption and NRW in litre per connection per day for the various water distribution systems for the 2024/2025 financial year.

| Table C.5.6: System input volume, average billed metered consumption and non-revenue water in litre per connection per day for the various water distribution systems for 2024/2025 |            |          |             |                 |             |         |              |            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-------------|-----------------|-------------|---------|--------------|------------|
| Water Balance Component                                                                                                                                                             | Koringberg | Ongegund | Riebeek Wes | Riebeek Kasteel | Yzerfontein | Darling | Moorreesburg | Malmesbury |
| System Input Volume                                                                                                                                                                 | 504        | 591      | 494         | 633             | 508         | 633     | 693          | 789        |
| Average Billed Metered Cons.                                                                                                                                                        | 416        | 478      | 435         | 448             | 444         | 473     | 485          | 615        |
| Non-Revenue Water                                                                                                                                                                   | 88         | 112      | 60          | 184             | 64          | 160     | 208          | 174        |

Malmesbury is the town with the highest system input volume and average billed metered consumption per connection per day, because it is main town of Swartland Municipality and the town with the biggest commercial centre. Moorreesburg is the town with the highest NRW per connection per day.

Number of consumers connected to a water reticulation system where pressures rise above 900 kPa at the consumer connection are as follows:

The table below gives an overview of the length of water pipelines and the average head for the different water distribution zones.

| Tables C.5.7: Length and average head of water pipelines |                                      |             |              |
|----------------------------------------------------------|--------------------------------------|-------------|--------------|
| System                                                   | Zone                                 | Length (km) | Average Head |
| Bulk Water Pipelines                                     |                                      |             |              |
| Malmesbury                                               | Malmesbury - Chatsworth Supply       | 4.750       | 50.05        |
|                                                          | Malmesbury - Kalbaskraal Reservoir   | 0.029       | 4.29         |
|                                                          | Malmesbury - Kleindam Reservoir      | 0.029       | 5.00         |
|                                                          | Malmesbury - Kleindam to Kalbaskraal | 18.232      | 43.72        |
|                                                          | Malmesbury - Riverlands Supply       | 9.153       | 30.55        |

| Tables C.5.7: Length and average head of water pipelines |                                                |             |              |
|----------------------------------------------------------|------------------------------------------------|-------------|--------------|
| System                                                   | Zone                                           | Length (km) | Average Head |
|                                                          | Malmesbury - Wesbank Reservoir                 | 0.348       | 7.25         |
|                                                          | Malmesbury - Wesbank Spoelpype                 | 0.016       | 21.47        |
|                                                          | Malmesbury - Wesbank Tower                     | 0.024       | 14.51        |
| Moorreesburg                                             | Moorreesburg - WCDM bulk PS                    | 4.028       | 128.15       |
| Riebeek Wes                                              | Riebeek Wes - HL Reservoir                     | 0.356       | 17.53        |
| Swartland                                                | Swartland - Glen Lilly reservoir               | 8.352       | 37.18        |
|                                                          | Swartland - Kasteelberg reservoir              | 0.645       | 16.35        |
| Withoogte                                                | Withoogte - Moorreesburg PS                    | 0.012       | 139.55       |
| External Bulk Water Pipelines                            |                                                |             |              |
| Swartland                                                | Swartland - Darling town PS                    | 0.933       | 57.99        |
|                                                          | Swartland - Darling Yzerfontein PS             | 21.548      | 79.94        |
|                                                          | Swartland - Glen Lilly reservoir               | 12.165      | 31.21        |
|                                                          | Swartland - Gouda PS                           | 6.842       | 70.72        |
|                                                          | Swartland - Kamp reservoir                     | 1.319       | 26.95        |
|                                                          | Swartland - Kasteelberg reservoir              | 50.792      | 71.62        |
|                                                          | Swartland - Malmesbury BPT                     | 61.160      | 57.31        |
|                                                          | Swartland - Rustfontein booster PS             | 8.719       | 27.59        |
|                                                          | Swartland - Swavelberg booster PS              | 37.016      | 45.66        |
|                                                          | Swartland - Voëlvlei PS                        | 29.111      | 152.03       |
|                                                          | Swartland - Voëlvlei WTP                       | 0.060       | 2.03         |
|                                                          | Swartland - Wildschutsvlei balancing reservoir | 29.124      | 123.83       |
| Withoogte                                                | Withoogte - Byeneskop reservoir                | 25.235      | 97.14        |
|                                                          | Withoogte - Misverstand dam                    | 13.215      | 90.97        |
|                                                          | Withoogte - Moorreesburg PS                    | 7.767       | 153.04       |
|                                                          | Withoogte - Withoogte reservoir                | 67.001      | 79.23        |
| Reticulation Pipelines                                   |                                                |             |              |
| Darling                                                  | Darling Reservoir                              | 20.715      | 41.26        |
|                                                          | Darling Reservoir - Darling PRV                | 25.570      | 30.34        |
| Koringberg                                               | Koringberg - Koringberg PRV                    | 4.936       | 29.27        |
|                                                          | Koringberg - Koringberg Reservoir              | 5.417       | 38.60        |
| Malmesbury                                               | Malmesbury - Abbotsdale booster                | 0.497       | 35.54        |
|                                                          | Malmesbury - Abbotsdale Reservoir              | 16.280      | 31.00        |
|                                                          | Malmesbury - Chatsworth PRV1                   | 25.333      | 53.79        |
|                                                          | Malmesbury - Chatsworth PRV2                   | 1.330       | 64.83        |
|                                                          | Malmesbury - Chatsworth Reservoir              | 5.325       | 39.31        |
|                                                          | Malmesbury - Glen Lily Booster PS              | 1.304       | 58.27        |
|                                                          | Malmesbury - Kalbaskraal Booster PS            | 8.659       | 44.71        |
|                                                          | Malmesbury - Kalbaskraal Reservoir             | 0.131       | 4.78         |
|                                                          | Malmesbury - Kleindam Reservoir                | 19.337      | 30.86        |
|                                                          | Malmesbury - Kleindam to Kalbaskraal           | 0.017       | 4.97         |
|                                                          | Malmesbury - Mount Royal Booster PS            | 1.692       | 38.17        |
|                                                          | Malmesbury - Mount Royal Reservoir             | 3.545       | 55.64        |
|                                                          | Malmesbury - Old Golf Course PRV               | 15.330      | 43.77        |
|                                                          | Malmesbury - Old Golf Course Reservoir         | 1.135       | 21.79        |
|                                                          | Malmesbury - Panorama Booster                  | 0.051       | 41.82        |
|                                                          | Malmesbury - Panorama Booster 1                | 1.587       | 46.85        |
|                                                          | Malmesbury - Panorama Booster 2                | 9.383       | 65.18        |
|                                                          | Malmesbury - Panorama Res PRV1                 | 14.297      | 45.51        |
|                                                          | Malmesbury - Panorama Res PRV2                 | 4.143       | 43.31        |
|                                                          | Malmesbury - Panorama Reservoir                | 5.894       | 30.95        |

| Tables C.5.7: Length and average head of water pipelines |                                                |             |              |
|----------------------------------------------------------|------------------------------------------------|-------------|--------------|
| System                                                   | Zone                                           | Length (km) | Average Head |
|                                                          | Malmesbury - Prison Reservoir                  | 5.014       | 48.56        |
|                                                          | Malmesbury - Riverlands PRV                    | 5.782       | 38.09        |
|                                                          | Malmesbury - Wesbank Reservoir                 | 38.443      | 35.88        |
|                                                          | Malmesbury - Wesbank Reservoir booster         | 9.863       | 31.50        |
|                                                          | Malmesbury - Wesbank Tower                     | 11.200      | 31.60        |
| Moorreesburg                                             | Moorreesburg - Moorreesburg Reservoir          | 42.384      | 50.19        |
|                                                          | Moorreesburg - Moorreesburg PRV                | 26.114      | 35.11        |
| Ongegend                                                 | Ongegend - PPC Factory Direct                  | 1.202       | 39.32        |
|                                                          | Ongegend - PPC Riebeek Wes Reservoir           | 6.160       | 45.10        |
| Riebeek Kasteel                                          | Riebeek Kasteel - Riebeek Kasteel PRV1         | 7.253       | 53.47        |
|                                                          | Riebeek Kasteel - Riebeek Kasteel PRV2         | 2.821       | 45.17        |
|                                                          | Riebeek Kasteel - Riebeek Kasteel PRV3         | 6.341       | 39.82        |
|                                                          | Riebeek Kasteel - Riebeek Kasteel PRV4         | 0.177       | 24.55        |
|                                                          | Riebeek Kasteel - Riebeek Kasteel Reservoir    | 6.494       | 45.35        |
| Riebeek Wes                                              | Riebeek Wes - HL Reservoir                     | 5.993       | 53.18        |
|                                                          | Riebeek Wes - LL Reservoir                     | 15.314      | 47.25        |
| Swartland                                                | Swartland - Kasteelberg reservoir              | 0.006       | 14.71        |
| Yzerfontein                                              | Yzerfontein - Yzerfontein Booster              | 1.905       | 51.73        |
|                                                          | Yzerfontein - Yzerfontein Reservoir            | 36.749      | 60.29        |
|                                                          | Yzerfontein Reservoir                          | 0.045       | 4.10         |
| External Reticulation Pipelines                          |                                                |             |              |
| Swartland                                                | Swartland - Darling BPT                        | 41.525      | 55.67        |
|                                                          | Swartland - Darling Yzerfontein PS             | 0.022       | 31.74        |
|                                                          | Swartland - Gouda PS                           | 0.011       | 19.26        |
|                                                          | Swartland - Kasteelberg reservoir              | 115.599     | 127.01       |
|                                                          | Swartland - Riebeek Kasteel BPT                | 8.056       | 40.67        |
|                                                          | Swartland - Voëlvlei PRVS                      | 42.030      | 63.27        |
|                                                          | Swartland - Wildschutsvlei balancing reservoir | 0.011       | 64.85        |
| Withoogte                                                | Withoogte - Byeneskop BPT                      | 26.584      | 60.34        |
|                                                          | Withoogte - Byeneskop reservoir                | 105.068     | 87.70        |
|                                                          | Withoogte - Koringberg BPT                     | 14.221      | 34.38        |
|                                                          | Withoogte - Koringberg reservoir               | 15.576      | 112.34       |
|                                                          | Withoogte - WBK line PRV 1                     | 9.738       | 80.47        |
|                                                          | Withoogte - WBK line PRV 2                     | 42.732      | 77.89        |
|                                                          | Withoogte - Withoogte reservoir                | 95.088      | 75.88        |

Average Head: 0m - 30m; 31m – 60m; 61m – 90m; > 90m

The table below indicate the potential savings on bulk water supply for each town within the Swartland Management Area, through the implementation of pressure management. The towns that should consider pressure management as a measure of water demand management (where the % potential saving > 3% of the total water demand), as identified in the Swartland Municipality WDM Strategy developed by CES, are also indicated in the table below.

| Table C.5.8: Potential savings on bulk water supply through the implementation of pressure management |                  |                                             |                                                                  |                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Distribution System                                                                                   | Saving Potential | Pressure Management Priority (WDM Strategy) | Number of consumer connections where pressure rise above 900 kPa |                                                                                                                                     |
|                                                                                                       |                  |                                             | Static Pressure                                                  | Residual Pressure                                                                                                                   |
| Koringberg                                                                                            | 13%              | High                                        | No areas where pressures exceed 90m.                             | In the 24m to 90m range under peak hour demand conditions                                                                           |
| PPC                                                                                                   | -                | Medium                                      | No areas where pressures exceed 90m.                             | In the 24m to 90m range under peak hour demand conditions, except for the higher lying areas where the pressures are as low as 20m. |

| Table C.5.8: Potential savings on bulk water supply through the implementation of pressure management |                  |                                             |                                                                                                    |                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Distribution System                                                                                   | Saving Potential | Pressure Management Priority (WDM Strategy) | Number of consumer connections where pressure rise above 900 kPa                                   |                                                                                                                                                                                                                                                                                                                           |
|                                                                                                       |                  |                                             | Static Pressure                                                                                    | Residual Pressure                                                                                                                                                                                                                                                                                                         |
| Riebeek Wes                                                                                           | 6%               | Medium                                      | No areas where pressures exceed 90m.                                                               | In the 24m to 90m range under peak hour demand conditions.                                                                                                                                                                                                                                                                |
| Riebeek Kasteel                                                                                       | 6%               | Medium                                      | No areas where pressures exceed 90m. Three PRVs in the system.                                     | In the 24m to 90m range under peak hour demand conditions.                                                                                                                                                                                                                                                                |
| Yzerfontein                                                                                           | 11%              | High                                        | No areas where pressures exceed 90m.                                                               | In the 24m to 90m range under peak hour demand conditions.                                                                                                                                                                                                                                                                |
| Darling                                                                                               | 7%               | Medium                                      | No areas where pressures exceed 90m.                                                               | In the 24m to 90m range under peak hour demand conditions, except for the higher lying areas close to the reservoir and in the low-cost housing development                                                                                                                                                               |
| Moorreesburg                                                                                          | 7%               | Medium                                      | No areas where pressures exceed 90m.                                                               | In the 24m to 90m range under peak hour demand conditions, except for the low-cost residential area where the pressures are as low as 20m, which is marginally less than the adopted design criteria.                                                                                                                     |
| Malmesbury                                                                                            | -                | Medium                                      | No areas where pressures exceed 90m. One PRV in the system.                                        | <p>The following areas could experience low residual pressures</p> <ul style="list-style-type: none"> <li>Higher lying areas in Wesbank which is currently fed from the Wesbank reservoirs and not the tower.</li> <li>Small area in the central part of Malmesbury, which is fed from the Kleindam reservoir.</li> </ul> |
| Abbotsdale, Chatsworth, Kalbaskraal and Riverlands                                                    | 9%               | Medium                                      | No areas where pressures exceed 90m. Four PRVs in the system (3 in Chatsworth and 1 in Riverlands) | In the 24m to 90m range under peak hour demand conditions                                                                                                                                                                                                                                                                 |

A **pressure reduction study** was completed for all the towns in Swartland Municipality's Management Area during the 2017/2018 financial year. The table below gives an overview of the existing PRV and the proposed future PRV zones.

| Table C.5.9: Existing and proposed PRV zones |                                                     |                         |        |                     |                |          |
|----------------------------------------------|-----------------------------------------------------|-------------------------|--------|---------------------|----------------|----------|
| Zone                                         | Description                                         | Average Static Head (m) |        | Current AADD (kl/d) | Estimated Cost | Priority |
|                                              |                                                     | Current                 | Future |                     |                |          |
| Existing PRV zones                           |                                                     |                         |        |                     |                |          |
| Chatsworth PRV1                              | Chatsworth pressure management                      | 54.1                    | 54.1   | 374.8               | -              | -        |
| Chatsworth PRV2                              |                                                     | 40.0                    | 40.0   |                     | -              | -        |
| Chatsworth PRV3                              |                                                     | 40.0                    | 40.0   |                     | -              | -        |
| Riverlands PRV                               | Riverlands pressure management                      | 38.6                    | 38.6   | 132.9               | -              | -        |
| Panorama PRV1                                | Malmesbury pressure management: Panorama PRV1       | 45.2                    | 35.2   | 348.2               | -              | 7        |
| Riebeek Kasteel PRV1                         | Riebeek Kasteel pressure management                 | 50.9                    | 39.5   | 195.36              | -              | -        |
| Riebeek Kasteel PRV2                         |                                                     | 46.3                    | 31.8   | 50.02               | -              | -        |
| Riebeek Kasteel PRV3                         |                                                     | 29.5                    | 26.5   | 275.5               | -              | -        |
| Total Existing PRV zones                     |                                                     |                         |        | 1 376.78            | -              |          |
| Proposed PRV zones                           |                                                     |                         |        |                     |                |          |
| Darling PRV                                  | Darling pressure management                         | 74.60                   | 33.28  | 1 118.3             | R337 540       | 1        |
| Koringberg PRV                               | Koringberg pressure management                      | 65.40                   | 33.80  | 86.4                | R222 600       | 8        |
| Moorreesburg PRV                             | Moorreesburg pressure management                    | 68.10                   | 36.90  | 744.8               | R595 000       | 3        |
| Old Golf Course PRV                          | Malmesbury pressure management: Old Golf Course PRV | 60.60                   | 44.80  | 385.0               | R278 600       | 6        |
| Panorama PRV2                                | Malmesbury pressure management: Panorama PRV 2&3    | 77.40                   | 43.40  | 836.8               | R462 000       | 2        |
| PPC Riebeek                                  | Ongeound pressure management                        | 63.35                   | 37.30  | 62.1                | R140 000       |          |

| Table C.5.9: Existing and proposed PRV zones |                                            |                         |        |                     |                   |          |
|----------------------------------------------|--------------------------------------------|-------------------------|--------|---------------------|-------------------|----------|
| Zone                                         | Description                                | Average Static Head (m) |        | Current AADD (kl/d) | Estimated Cost    | Priority |
|                                              |                                            | Current                 | Future |                     |                   |          |
| Prison PRV                                   | Malmesbury pressure management: Prison PRV | 72.20                   | 31.30  | 60.8                | R140 000          | 9        |
| Riebeeck Wes PRV                             | Riebeeck Wes pressure management           | 74.30                   | 33.30  | 276.5               | R434 000          | 4        |
|                                              |                                            |                         |        |                     | R930 860          |          |
| Yzerfontein PRV                              | Yzerfontein pressure management            | 63.00                   | 36.75  | 427.5               | R1 451 380        | 5        |
| <b>Total Proposed PRV zones</b>              |                                            |                         |        | <b>3 998.2</b>      | <b>R4 991 980</b> |          |

The following PRVs were installed and refurbished during the 2017/2018 financial year.

- New PRV installations: 1 x Darling, 1 x Koringberg, 2 x Moorreesburg, 4 x Malmesbury, 2 x Riebeeck Valley and 1 x Yzerfontein,
- Refurbishment of existing PRVs: 4 x Chatsworth, 1 x Malmesbury and 6 x Riebeeck Valley.

The existing Darling PRV was replaced during the 2024/2025 financial year.

#### Demand management activities undertaken:

The main water demand management interventions undertaken by Swartland Municipality over the last few years, as included in the **WDM Strategy** of September 2019, are summarised in the table below.

| Table C.5.10: WDM activities implemented by Swartland Municipality                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Reduce water losses and non-revenue water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
| <ul style="list-style-type: none"> <li>• Metering of all water usage – households, standpipes, municipal parks, industrial, commercial and institutional.</li> <li>• Monthly reading and billing of all meters.</li> <li>• Inspection for illegal connections on an ongoing basis;</li> <li>• Formalising all illegal and/or unmetered connections immediately upon coming to attention;</li> <li>• Metering and billing of temporary consumption, typically by construction companies;</li> <li>• Annual audit of all meters 50mm and larger and replacement of the meters where necessary;</li> <li>• Monthly monitoring of all wet industries and large volume water users for deviations together with appropriate actions in the event of a deviation.</li> <li>• Monthly monitoring and inspection of zero usage consumers;</li> <li>• Repair of burst pipes within 3 hours;</li> <li>• Accurate calculation of water losses and record keeping;</li> <li>• Zone metering;</li> <li>• Day flow metering;</li> <li>• Re-use of treated effluent for the irrigation of sport fields in Moorreesburg, Malmesbury, Darling and Riebeeck Kasteel;</li> <li>• Watering of municipal parks during cooler early morning hours; and</li> <li>• Re-Use of treated effluent during construction projects instead of potable water, where possible.</li> </ul> |  |
| Pressure Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| <ul style="list-style-type: none"> <li>• Pressure control at high pressure zones in each of the towns in the Municipal Area.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
| Leak and Meter Repairs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| <ul style="list-style-type: none"> <li>• Leak repairs assistance programme for indigent households;</li> <li>• Meter replacement programme for all connections;</li> <li>• Annual fire hydrant inspection for leaks and functioning;</li> <li>• Retrofitting of municipal buildings with water efficient equipment;</li> <li>• Immediate leak repair in municipal buildings; and</li> <li>• Meter audits to determine the accuracy of meter readings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| Consumer / End User Demand Management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
| <ul style="list-style-type: none"> <li>• Block tariffs to discourage inefficient and wasteful use of water;</li> <li>• Drought tariffs applicable during times of severe drought;</li> <li>• Central customer care service where leaks are reported by the public;</li> <li>• Incremental levels of stringency for water restrictions, to manage demand during periods of drought and water shortages;</li> <li>• Notices and communication media on billboards and municipal website raising awareness pertaining water conservation; and</li> <li>• Communicating information on municipal bills pertaining water use and target volume savings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |

| Table C.5.10: WDM activities implemented by Swarthland Municipality                                                                                                                                                                                                                     |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Infrastructure Management                                                                                                                                                                                                                                                               |  |
| <ul style="list-style-type: none"> <li>• Operations and maintenance schedule;</li> <li>• Regular inspections of water distribution networks, pump stations and reservoirs; and</li> <li>• Current Water- and Sewer Masterplan based on current available growth projections.</li> </ul> |  |
| Reduction in Municipal Water Demand                                                                                                                                                                                                                                                     |  |
| <ul style="list-style-type: none"> <li>• Municipal parks have been re-landscaped to be less water intensive. Watering has been limited to before 08:00 am, in order to limit water losses through evaporation.</li> </ul>                                                               |  |
| Alternative Resources                                                                                                                                                                                                                                                                   |  |
| <ul style="list-style-type: none"> <li>• Funding was secured for the development of groundwater as an alternative resource. Boreholes were drilled as an alternative water source and have yielded reasonable volumes.</li> </ul>                                                       |  |

The WDM Strategy also include the following future WDM measures that will be implemented by Swarthland Municipality.

- Pressure Management
- Leak Repair and Assistance Programme
- Residential Measures
- Re-use of treated effluent
- Meter replacement
- Night Flow Analyses
- Leakage Detection
- Zone Metering
- Alternative water resources

The Municipality plan to update their WC/WDM Strategy in order to ensure compliance with the requirements included in the Revised Compulsory National Water and Sanitation Standards, as published in Government Gazette No.52814 of 6 June 2025, which stipulate the following:

Water Services Institutions must develop and implement a 10-year Council approved WC/WDM Strategy and an Annual Plan within six months of the publication to be uploaded on the IRIS system and must consist of at least the following:

- Situation Assessment;
- Key issues and challenges;
- Focus areas of interventions;
- List of proposed interventions;
- Set targets for demand, NRW, water losses (commercial and real losses), ILI and per capita usage in line with subsection above; and
- Budgets and Multi-year Implementation timelines.

DWS's scorecard for assessing the potential for WC/WDM efforts, as completed for Swarthland Municipality, is included in Annexure E. The aim of the scorecard was to establish areas where the municipality has made good progress in relation to WC/WDM and where there is still room for improvement. It can be seen from the Scorecard that there are 25 questions each of which carries a maximum of 4 points providing a possible maximum score of 100. If the Municipality has the specific item completely under control, it receives the maximum points and if it is neglecting the item completely it receives no points. There are various levels between the maximum and the minimum number of points assigned to the municipality for each item depending on the level of completeness or lack thereof. **The status quo score for Swarthland Municipality is 85 out of 100 suggesting that the Municipality is making good progress with regard to the implementation of specific WC/WDM activities.**



**Pipeline Replacement Study:** A pipeline replacement study was performed for Swartland Municipality's entire water distribution system. The project entailed the verification of system data, establishment of a computer model for the pipe replacement network, performing an analysis and reporting. The pipe replacement potential was determined for each of the pipelines in the water distribution systems by assessing the likelihood of failure (LF) and the consequence of failure (CF). The independent factors and their weight factors used are summarised in the tables below.

| Table C.5.11: The independent factors and the weight factors used to determine the pipe replacement potential |        |            |                                                      |        |            |
|---------------------------------------------------------------------------------------------------------------|--------|------------|------------------------------------------------------|--------|------------|
| Likelihood of Failure Property                                                                                | Weight | Weight (%) | Consequence of Failure Property                      | Weight | Weight (%) |
| Nominal diameter (mm)                                                                                         | 20     | 19.0       | High cost to consumer due to high water pressure (m) | 2      | 3.0        |
| Reserve water pressure ratio                                                                                  | 10     | 9.5        | High cost to consumer due to flow (l/s)              | 15     | 19.0       |
| Catalogue remaining useful life (yr)                                                                          | 15     | 14.3       | High repair cost due to pipe location                | 10     | 13.0       |
| Master Plan Item                                                                                              | 5      | 4.8        | Flooding due to geography                            | 5      | 6.0        |
| Leakage volume (l/min/km)                                                                                     | 10     | 9.5        | Strategic location                                   | 20     | 26.0       |
| Undesired material                                                                                            | 20     | 19.0       | Network redundancy (l/s)                             | 10     | 13.0       |
| Failure frequency (breaks/km/yr)                                                                              | 25     | 23.8       | Pavement management system                           | 15     | 19.0       |
|                                                                                                               |        | 100.0      |                                                      |        | 100.0      |

The total pipe replacement potential was calculated for each pipeline as an index:

$$PRP = LF \times CF \text{ (In the range of 1 to 25)}$$

The total length of the water supply network is approximately 418 km with an estimated replacement value of R543 400 000. The average condition of the water network can be rated as fair to poor. The pipe replacement requirement amounts to R59 434 766 over the next three (3) years and 30.84 km. This new calibrated and tested pipe failure model identifies with a single geographical view where pipe failures are most likely to occur. It is foreseen that this model will greatly assist the pipe replacement prioritization process as it is completely based on a new scientific approach. By allocating funds to replacing those pipes most likely to fail in future, a limited budget can be spent effectively. The Municipality continued with their pipeline replacement programme during the last financial year.

#### Progress made with the installation of water efficient devices:

Swartland Municipality has investigated the possibility to replace all existing star pillar taps in all public ablution facilities throughout its whole jurisdiction and is considering committing to this proposal by including the replacement costs in its budget for the coming financial years. It should be noted that the replacement of taps will be done over a five-year period to allow Municipal staff capacity to execute the task themselves. No flow restrictors were installed during the last five financial years.

## C.6. Water Services Asset Management

The tables below give an overview of the water and sewerage assets included in Swartland Municipality's Asset Register. The Opening Cost and Book Value of the water and sewerage infrastructure is summarised in the table below (June 2025).

| Table C.6.1: Opening Cost (OC) and Book Value (BV) of the water and sewerage infrastructure |        |                     |                     |            |
|---------------------------------------------------------------------------------------------|--------|---------------------|---------------------|------------|
| Asset Type                                                                                  | GIS ID | Opening Cost (OC)   | Book Value (BV)     | % BV / OC  |
| WATER                                                                                       |        |                     |                     |            |
| Boreholes                                                                                   | BH     | R1 776 952          | R1 089 139          | 61%        |
| Pump Stations                                                                               | WPS    | R24 685 420         | R16 827 201         | 68%        |
| Reservoirs                                                                                  | RES    | R427 909 147        | R169 894 278        | 40%        |
| Reticulation Pipelines                                                                      | WRP    | R389 454 475        | R218 337 560        | 56%        |
| Bulk Water Pipelines                                                                        | BWP    | R24 475 168         | R20 892 397         | 85%        |
| Dams                                                                                        | DAM    | R30 352 150         | R672 926            | 2%         |
| WTW                                                                                         | WTW    | R23 731 966         | R14 009 440         | 59%        |
| Other Assets                                                                                | OTH    | R6 802 015          | R12 936 801         | 190%       |
| <b>Totals</b>                                                                               |        | <b>R929 187 293</b> | <b>R454 659 740</b> | <b>49%</b> |



| Table C.6.1: Opening Cost (OC) and Book Value (BV) of the water and sewerage infrastructure |        |                     |                     |            |
|---------------------------------------------------------------------------------------------|--------|---------------------|---------------------|------------|
| Asset Type                                                                                  | GIS ID | Opening Cost (OC)   | Book Value (BV)     | % BV / OC  |
| SEWERAGE                                                                                    |        |                     |                     |            |
| Sewer Pump Stations                                                                         | SPS    | R22 176 280         | R14 569 334         | 66%        |
| Sewage Treatment Works                                                                      | STW    | R393 756 356        | R285 320 978        | 72%        |
| Sewer Reticulation Pipelines                                                                | SRP    | R388 922 204        | R155 716 627        | 40%        |
| Bulk Sewer Pipelines                                                                        | BSP    | R64 508 093         | R29 421 385         | 46%        |
| Other Assets                                                                                | OTH    | R11 834 985         | R8 296 342          | 70%        |
| <b>Totals</b>                                                                               |        | <b>R881 197 918</b> | <b>R493 324 666</b> | <b>56%</b> |

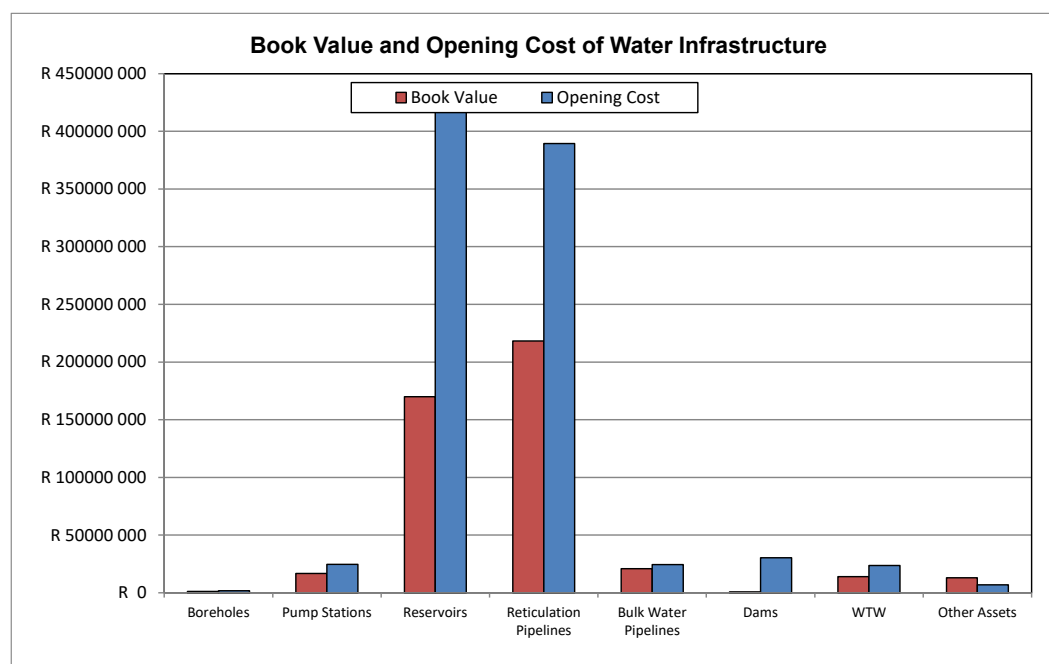


Figure C.6.1: Book Value and Opening Cost of the water infrastructure

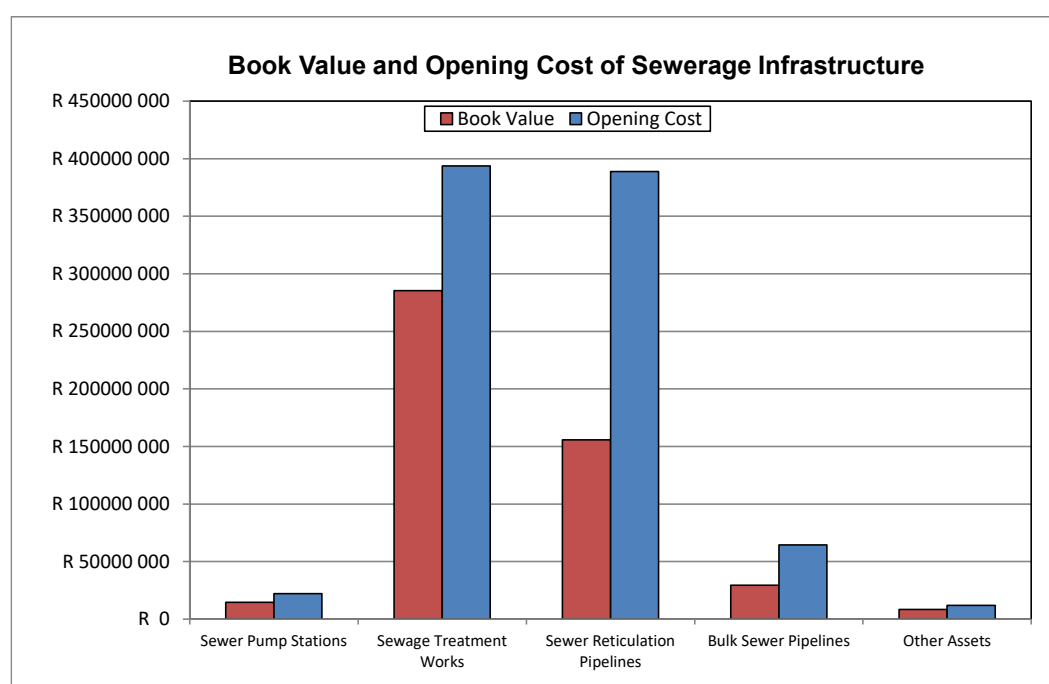


Figure C.6.2: Book Value and Opening Cost of the sewerage infrastructure

The previous tables indicate that about 51% of the value of the water infrastructure and 44% of the value of the sewerage infrastructure has been consumed.

The table below gives an overview of the RUL per facility type for the water and sewerage infrastructure (June 2025).

| Table C.6.2: Overview of the RUL by facility type for water and sewerage infrastructure (OC) |        |                   |                    |                    |                    |                     |
|----------------------------------------------------------------------------------------------|--------|-------------------|--------------------|--------------------|--------------------|---------------------|
| Asset Type                                                                                   | GIS ID | 0 – 5 yrs         | 6 – 10 yrs         | 11 – 15 yrs        | 16 – 20 yrs        | > 20 yrs            |
| <b>WATER</b>                                                                                 |        |                   |                    |                    |                    |                     |
| Boreholes                                                                                    | BH     | R0                | R817 696           | R0                 | R0                 | R959 256            |
| Pump Stations                                                                                | WPS    | R27 143           | R10 034 010        | R3 157 798         | R1 847 754         | R9 618 715          |
| Reservoirs                                                                                   | RES    | R315 591          | R6 100 947         | R3 179 572         | R129 167           | R418 183 870        |
| Reticulation Pipelines                                                                       | WRP    | R0                | R16 283 215        | R650 820           | R0                 | R372 520 440        |
| Bulk Water Pipelines                                                                         | BWP    | R0                | R0                 | R0                 | R0                 | R24 475 168         |
| Dams                                                                                         | DAM    | R0                | R0                 | R1 860             | R0                 | R30 350 290         |
| WTW                                                                                          | WTW    | R92 473           | R5 022 017         | R153 375           | R1 742 580         | R16 721 521         |
| Other Assets                                                                                 | OTH    | R3 443 433        | R2 360 303         | R17 875            | R492               | R979 912            |
| <b>TOTALS</b>                                                                                |        | <b>R3 878 640</b> | <b>R40 618 188</b> | <b>R7 161 300</b>  | <b>R3 719 993</b>  | <b>R873 809 172</b> |
| <b>SEWERAGE</b>                                                                              |        |                   |                    |                    |                    |                     |
| Sewer Pump Stations                                                                          | SPS    | R28 677           | R2 748 025         | R6 469 350         | R5 389 940         | R7 540 288          |
| Sewage Treatment Works                                                                       | STW    | R1 792 598        | R33 518 141        | R52 547 292        | R49 113 390        | R256 784 935        |
| Sewer Reticulation Pipelines                                                                 | SRP    | R0                | R0                 | R0                 | R0                 | R388 922 204        |
| Bulk Sewer Pipelines                                                                         | BSP    | R0                | R0                 | R0                 | R0                 | R64 508 093         |
| Other Assets                                                                                 | OTH    | R4 269 719        | R7 565 266         | R0                 | R0                 | R0                  |
| <b>TOTALS</b>                                                                                |        | <b>R6 090 994</b> | <b>R43 831 432</b> | <b>R59 016 642</b> | <b>R54 503 330</b> | <b>R717 755 520</b> |

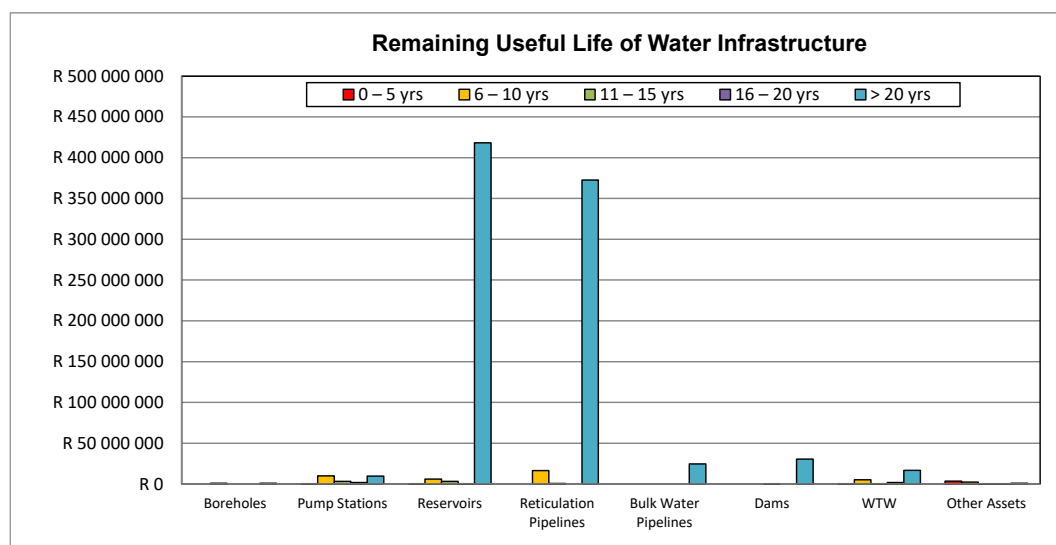


Figure C.6.3: Remaining Useful Life of the water infrastructure

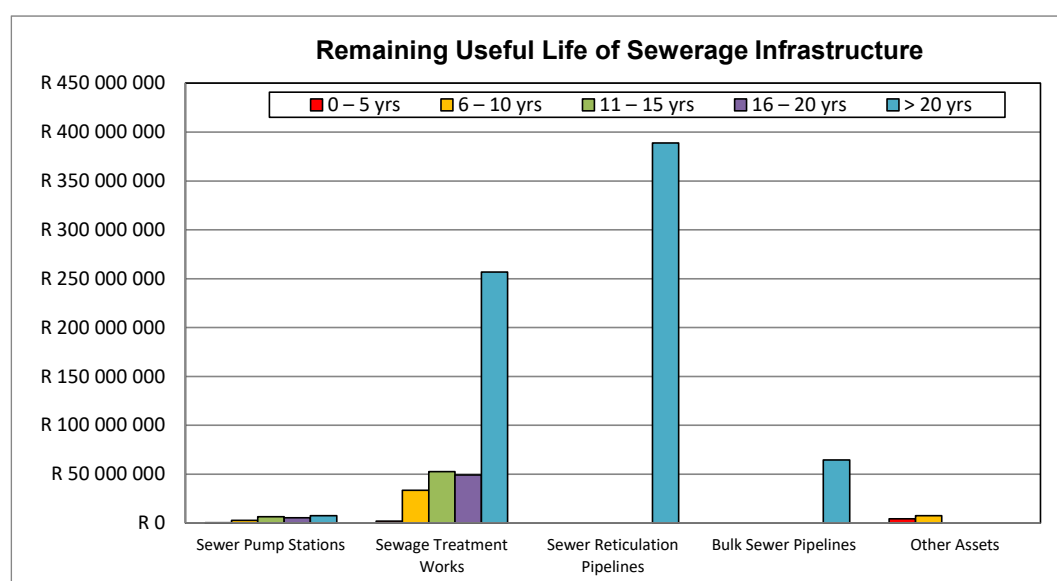


Figure C.6.4: Remaining Useful Life of the sewerage infrastructure

The table below gives an overview of the age distribution per facility for the water and sewerage infrastructure (June 2025).

| Table C.6.3: Overview of the age distribution by facility type for water and sewerage infrastructure (OC) |        |                     |                     |                   |                     |                     |
|-----------------------------------------------------------------------------------------------------------|--------|---------------------|---------------------|-------------------|---------------------|---------------------|
| Asset Type                                                                                                | GIS ID | 0 – 5 yrs           | 6 – 10 yrs          | 11 – 15 yrs       | 16 – 20 yrs         | > 20 yrs            |
| <b>WATER</b>                                                                                              |        |                     |                     |                   |                     |                     |
| Boreholes                                                                                                 | BH     | R937 737            | R654 976            | R0                | R0                  | R184 239            |
| Pump Stations                                                                                             | WPS    | R18 972 054         | R4 753 311          | R200 420          | R758 675            | R960                |
| Reservoirs                                                                                                | RES    | R16 314 972         | R101 520 621        | R1 649 756        | R68 865 678         | R239 558 120        |
| Reticulation Pipelines                                                                                    | WRP    | R60 929 030         | R16 842 115         | R1 510 858        | R163 480 346        | R146 692 126        |
| Bulk Water Pipelines                                                                                      | BWP    | R9 992 966          | R0                  | R0                | R3 902 476          | R10 579 726         |
| Dams                                                                                                      | DAM    | R1 860              | R30 237 142         | R56 776           | R56 372             | R0                  |
| WTW                                                                                                       | WTW    | R173 009            | R1 801 536          | R1 062 309        | R20 257 844         | R437 268            |
| Other Assets                                                                                              | OTH    | R2 210 371          | R1 768 619          | R1 664 077        | R1 112 818          | R46 130             |
| <b>TOTALS</b>                                                                                             |        | <b>R109 531 999</b> | <b>R157 578 320</b> | <b>R6 144 196</b> | <b>R258 434 209</b> | <b>R397 498 569</b> |
| <b>SEWERAGE</b>                                                                                           |        |                     |                     |                   |                     |                     |
| Sewer Pump Stations                                                                                       | SPS    | R14 068 480         | R7 331 225          | R227 318          | R549 257            | R0                  |
| Sewage Treatment Works                                                                                    | STW    | R238 540 436        | R147 721 966        | R308 346          | R7 159 343          | R26 265             |
| Sewer Reticulation Pipelines                                                                              | SRP    | R56 893 321         | R103 248 990        | R0                | R0                  | R228 779 893        |
| Bulk Sewer Pipelines                                                                                      | BSP    | R20 658 271         | R19 248 151         | R0                | R0                  | R24 601 671         |
| Other Assets                                                                                              | OTH    | R3 682 712          | R2 496 761          | R4 526 075        | R1 108 955          | R20 482             |
| <b>TOTALS</b>                                                                                             |        | <b>R333 843 220</b> | <b>R280 047 093</b> | <b>R5 061 739</b> | <b>R8 817 555</b>   | <b>R253 428 311</b> |

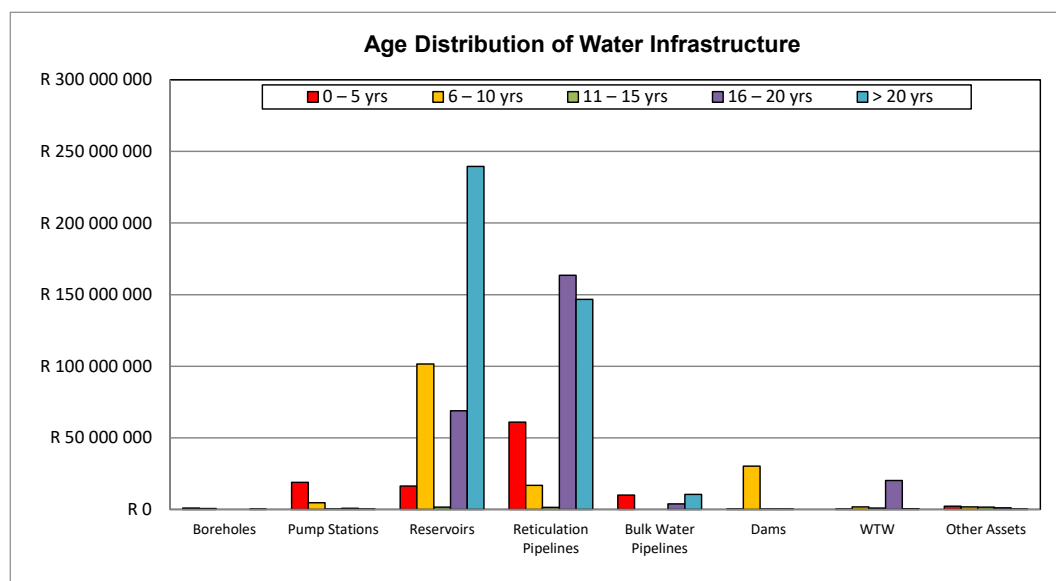


Figure C.6.5: Age distribution of the water infrastructure

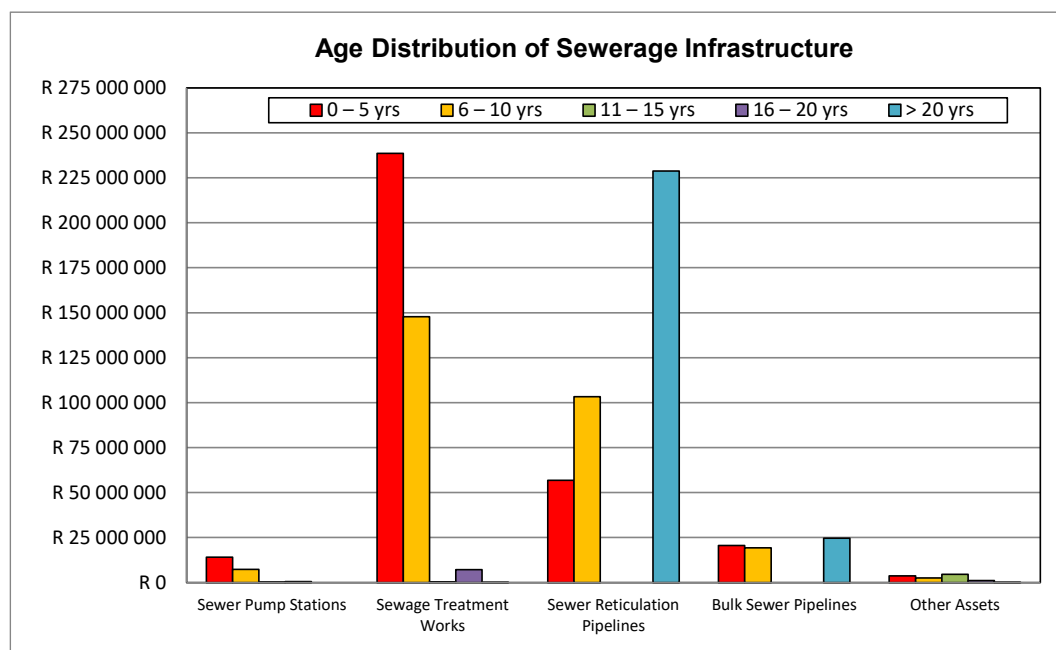


Figure C.6.6: Age distribution of the sewerage infrastructure

The Opening Cost of the water and sewerage infrastructure that will need to be replaced over the next five years (RUL < 5 yrs) is R9.970 million. The asset renewal needs for the water infrastructure assets over the next ten years is R4.450 million per year. The reinvestment required is R3.879 million in the first five years and R40.618 million in the second five-year period. The age of 42.78% of the water infrastructure assets is greater than twenty years. The asset renewal needs for the sewerage infrastructure assets over the next ten years is R4.992 million per year. The reinvestment required is R6.091 million in the first five years and R43.831 million in the second five-year period. The age of 28.76% of the sewerage infrastructure assets is greater than twenty years.

The tables below give an overview of the water infrastructure assets for the Swartland bulk water distribution system, which is owned by the Swartland Municipality, but operated and maintained by the West Coast District Municipality. The Opening Cost and Book Value of the bulk water infrastructure is summarised in the table below (June 2025).

| Table C.6.4: Opening Cost and Book Value of the bulk water infrastructure |                     |                    |            |
|---------------------------------------------------------------------------|---------------------|--------------------|------------|
| Asset Type                                                                | Opening Cost (OC)   | Book Value (BV)    | % OC / BV  |
| Pump Stations                                                             | R3 557 861          | R2 146 703         | 60%        |
| Reservoirs                                                                | R50 444 418         | R31 963 165        | 63%        |
| Reticulation Pipelines                                                    | R70 129 431         | R35 739 765        | 51%        |
| Water Meters                                                              | R256 163            | R177 138           | 69%        |
| WTW                                                                       | R24 739 802         | R14 437 283        | 58%        |
| Electrical                                                                | R1 028 455          | R579 246           | 56%        |
| <b>Totals</b>                                                             | <b>R150 156 130</b> | <b>R85 043 300</b> | <b>57%</b> |

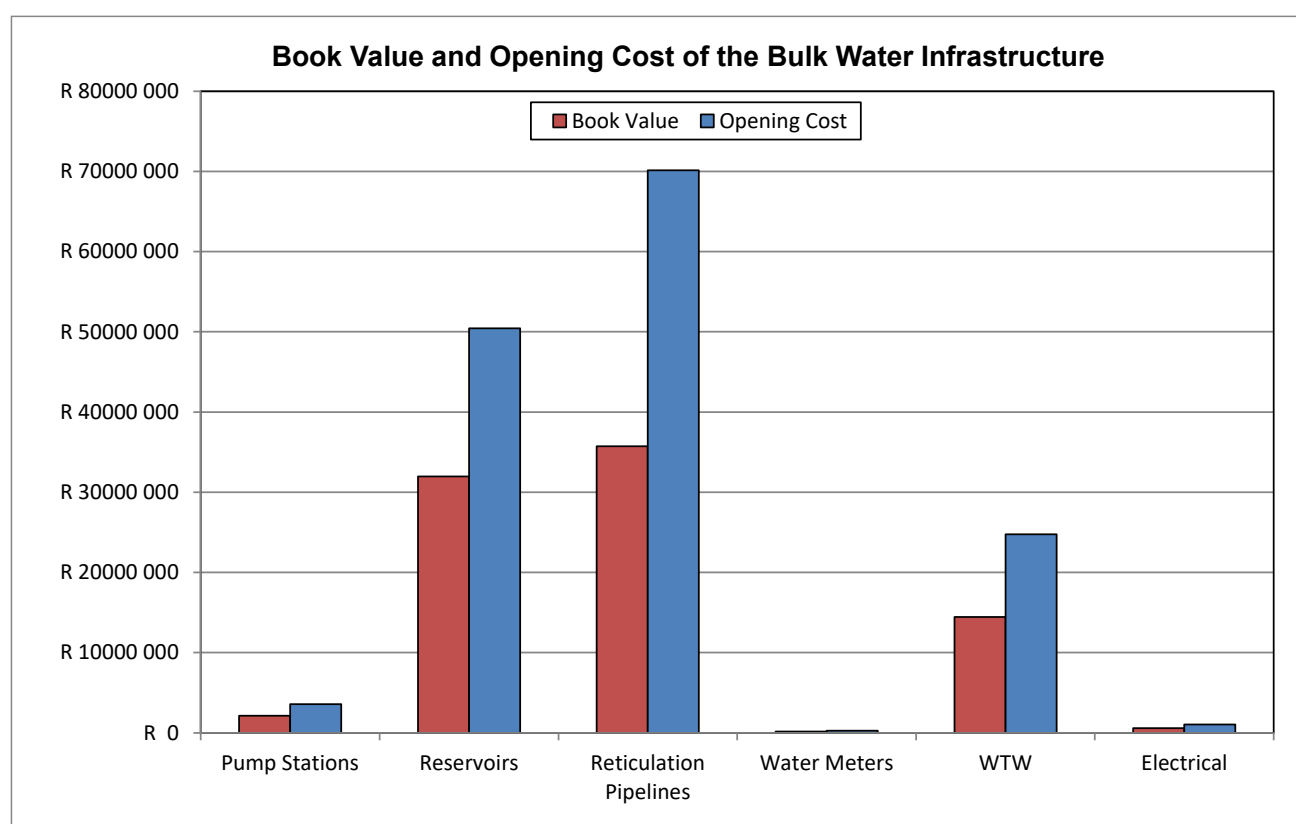


Figure C.6.7: Book Value and Opening Cost of the bulk water infrastructure

| Asset Type             | 0 – 5 yrs         | 6 – 10 yrs        | 11 – 15 yrs       | 16 – 20 yrs        | > 20 yrs           |
|------------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| Pump Stations          | R0                | R1 368 848        | R93 063           | R0                 | R2 095 950         |
| Reservoirs             | R18 553           | R160 108          | R78 236           | R232 198           | R49 955 323        |
| Reticulation Pipelines | R31 444           | R9 245            | R271 610          | R50 923 533        | R18 893 599        |
| Water Meters           | R55 119           | R201 044          | R0                | R0                 | R0                 |
| WTW                    | R1 012 429        | R100 357          | R6 825 569        | R1 394 206         | R15 407 241        |
| Electrical             | R0                | R0                | R51 168           | R0                 | R977 287           |
| <b>Totals</b>          | <b>R1 117 545</b> | <b>R1 839 602</b> | <b>R7 319 646</b> | <b>R52 549 937</b> | <b>R87 329 400</b> |

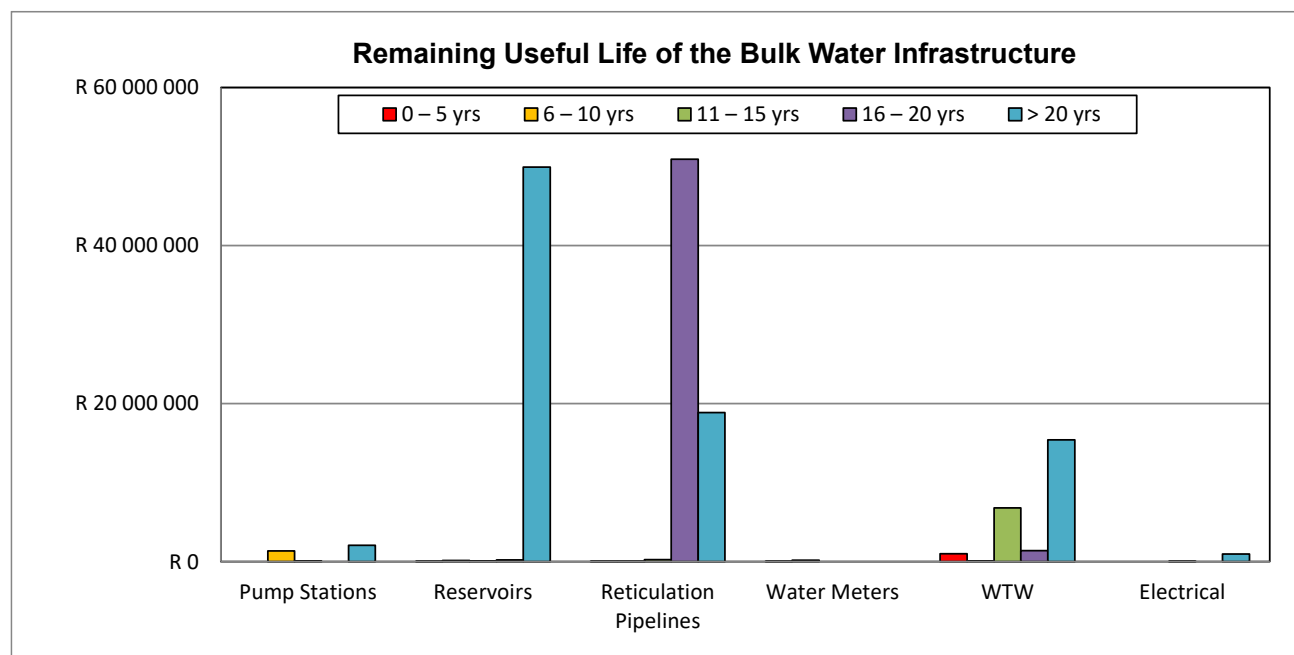


Figure C.6.8: Remaining Useful Life of the bulk water infrastructure

| Asset Type             | 0 – 5 yrs         | 6 – 10 yrs         | 11 – 15 yrs       | 16 – 20 yrs        | > 20 yrs           |
|------------------------|-------------------|--------------------|-------------------|--------------------|--------------------|
| Pump Stations          | R2 880 219        | R672 998           | R0                | R4 644             | R0                 |
| Reservoirs             | R1 514 134        | R48 693 871        | R0                | R236 413           | R0                 |
| Reticulation Pipelines | R84 747           | R75 585            | R271 119          | R50 923 533        | R18 774 447        |
| Water Meters           | R156 222          | R99 941            | R0                | R0                 | R0                 |
| WTW                    | R173 009          | R1 801 536         | R1 062 309        | R21 265 681        | R437 267           |
| Electrical             | R0                | R0                 | R24 147           | R1 004 308         | R0                 |
| <b>Totals</b>          | <b>R4 808 331</b> | <b>R51 343 931</b> | <b>R1 357 575</b> | <b>R73 434 579</b> | <b>R19 211 714</b> |

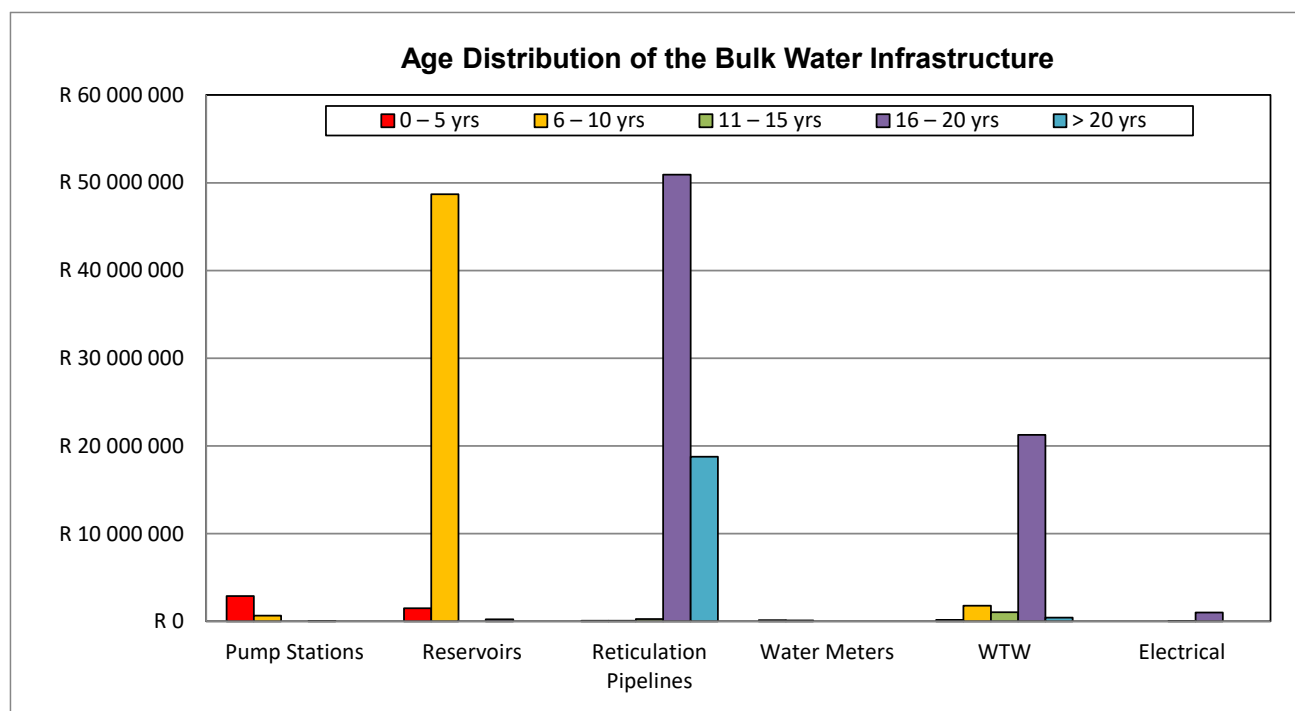


Figure C.6.9: Age distribution of the bulk water infrastructure

Most of the maintenance work currently carried out on the water and sewerage infrastructure are re-active and it is critical for the Municipality to increase their maintenance budget for water and sewerage infrastructure in order to ensure that the required preventative maintenance work is also carried out. The Asset Management Plan needs to indicate the risks associated with the inadequate refurbishment and maintenance of the various water and sewerage infrastructure.

It is important for Swartland Municipality to allocate adequate funds for the refurbishment, replacement and maintenance of their existing infrastructure, which is critical to ensure the sustainability of the services that are provided by the Municipality. All possible external sources of funding to assist with the development of the bulk infrastructure and additional sources need to be identified.

## C.7. Water Services Operation and Maintenance

Swartland Municipality implements the following planned and unplanned preventative and corrective maintenance, as summarised in the table below.

| Table C.7.1: Types of Planned and Unplanned Preventative and Corrective Maintenance implemented by Swartland Municipality                                                                                                                      |                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Design-out Maintenance:</b> Design-out Maintenance originates on the drawing board and is aimed at improving the operation, reliability or capacity of equipment. The engineer follows a life cycle approach to infrastructure development. |                                                                                                                                                                                                                                                                                                                         |
| <b>Preventative Maintenance:</b> Preventative maintenance is based on planning. For example, breakdowns at a plant can be reduced to a minimum if it is planned that all wearing parts are to be replaced before they fail.                    | <b>Systematic (Periodic Maintenance):</b> Systematic maintenance is periodic maintenance where the servicing of equipment takes place at regular intervals, either in accordance with a time schedule or on the basis of predetermined units of use, to eliminate possible causes of failure before a breakdown occurs. |
|                                                                                                                                                                                                                                                | Systematic maintenance requires a servicing schedule, which is based on the manufacturer's guidelines for equipment.                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                | <b>Condition-based (Predictive) Maintenance:</b> Condition-based maintenance is predictive maintenance based on regularly inspecting equipment and infrastructure in order to assess the state of wear and tear.                                                                                                        |
| Any failures that are observed, complemented by the findings of the programmed inspections and checks, are then dealt with through corrective action, so as to avoid breakdowns or the deterioration of a                                      |                                                                                                                                                                                                                                                                                                                         |



| Table C.7.1: Types of Planned and Unplanned Preventative and Corrective Maintenance implemented by Swartland Municipality                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                              | condition that could pose a safety hazard.                                                                                                                                                                                                  |
| <b>Corrective or Breakdown Maintenance:</b> It is important to work methodically to keep repair time as short as possible. Good work preparation, use of correct (and well maintained) tools and equipment, and gathering and processing of all data relevant to the repairs helps to avoid downtime, eliminate mistakes and improve operational conditions. | <b>Planned (Scheduled Repairs)</b><br><b>Unplanned repairs guided by Troubleshooting:</b> Troubleshooting is used when poor condition causes either total or partial stoppages, or when operations take place under intolerable conditions. |

Swartland Municipality's operation and maintenance assessments and plans for their water and sewerage infrastructure are indicated in the table below.

| Table C.7.2: Swartland Municipality's Operation and Maintenance Assessments and Plans |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Element                                                                               | Assessment Criteria                                                                                                                                                                                                                                                                           | Status Quo                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Resources                                                                             |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Staff                                                                                 | Sufficient staff numbers.<br>Competency level of staff at all levels.<br>Level of service provided by staff.<br>Empowerment and training (Adequately trained for position, Safety regulation and Commitment).<br>Responsibility allocation (organisational structure) and acceptance thereof. | <b>Below minimum requirement:</b> Additional Process Controllers need to be appointed to comply with the new Regulation 3630 requirements with regard to the number and Class of Process Controller per shift per WWTW. Alternatively, the Municipality can apply for exemption from the DWS, w.r.t the number of Process Controllers per shift per plant, if the plants are automated. Workplace Skills Programme is compiled annually to ensure adequate training of staff. |
| External Resources                                                                    | Need for external resource providers.<br>Competency level and value for money.<br>Management and control over these providers.                                                                                                                                                                | <b>Adequate:</b> The operation and maintenance of the bulk water pipelines and the Swartland WTW are done by the West Coast District Municipality, with adequate personnel. A Service Level Agreement is in place between the West Coast District Municipality and Swartland Municipality.                                                                                                                                                                                    |
| Spare Parts                                                                           | Adequate materials provisioning.<br>Store management (Sufficient stock kept, stock control and delivery time).                                                                                                                                                                                | <b>Adequate:</b> Municipality ensures adequate spare parts are available in their stores for possible failures or breakdowns. Monitored by the Civil Engineering Services Directorate.                                                                                                                                                                                                                                                                                        |
| Tools and Equipment                                                                   | Adequate tools and equipment provided.<br>Control and maintenance.                                                                                                                                                                                                                            | <b>Adequate:</b> Municipality ensures adequate tools and equipment are available. Monitored by the Civil Engineering Services Directorate.                                                                                                                                                                                                                                                                                                                                    |
| Budget                                                                                | Adequate budget provided.<br>Budget control.<br>Identification and documentation of needs.<br>Budget preparation and motivation.                                                                                                                                                              | <b>Adequate:</b> Required Financial Strategies, Policies and Systems are in place to ensure proper budget control. Budget allocation towards the replacement / refurbishment of the existing water and sewerage infrastructure can be increased.                                                                                                                                                                                                                              |
| Information                                                                           |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Manuals                                                                               | Existence of manuals (operation / maintenance or manufacturer).<br>Record keeping / safekeeping and control.<br>Utilisation of manuals by staff.                                                                                                                                              | <b>Adequate:</b> O&M Manuals are in place for the bulk water and sewerage infrastructure and the WWTWs. These Manuals are also used by the Process Controllers at the plants.                                                                                                                                                                                                                                                                                                 |
| Asset Register                                                                        | Existence of an asset register.<br>Maintenance / updating of asset register.<br>Accessibility of information.<br>Control over assets.<br>Stock taking.                                                                                                                                        | <b>Adequate:</b> An up-to-date Asset Register is in place, which include all the water and sewerage infrastructure. CRC, DRC, RUL and Age of infrastructure are included in the Asset Register. The Asset Register is updated annually.                                                                                                                                                                                                                                       |
| As-built Information                                                                  | Existence of as-built drawings.<br>Existence of important reports e.g. design reports etc.<br>Record keeping / safekeeping and control.<br>Accessibility of information.<br>Updating of records.                                                                                              | <b>Adequate:</b> As-built information is available for all water and sewerage infrastructure. The information is also included in the IMQS of the Municipality. The information is regularly updated when the Water and Sewer Master Plans are updated.                                                                                                                                                                                                                       |
| Tools and Equipment                                                                   | Existence of information on tools and equipment.<br>Record keeping / safekeeping and control.<br>Accessibility of information.                                                                                                                                                                | <b>Adequate:</b> Managed by the Operational Personnel at the various Municipal stores, with the required control forms that are in place. Monitored by the Civil Engineering Services Directorate.                                                                                                                                                                                                                                                                            |
| Contingency and Safety                                                                | Compliance to safety requirements.                                                                                                                                                                                                                                                            | <b>Adequate:</b> A Water Safety Plan and W <sub>2</sub> RAPs are in place for all the areas. The W <sub>2</sub> RAPs and WWTW Process                                                                                                                                                                                                                                                                                                                                         |

| Table C.7.2: Swartland Municipality's Operation and Maintenance Assessments and Plans |                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Element                                                                               | Assessment Criteria                                                                                                                                                                         | Status Quo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Plans                                                                                 | Safety equipment and maintenance thereof.<br>Existence of safety plan where required.<br>Existence of contingency plan where required.                                                      | Audits were updated during the 2024/2025 financial year. Incident Management Protocols, as included in the Water Safety Plan and W <sub>2</sub> RAPs, are followed by the personnel.                                                                                                                                                                                                                                                                                                                                                         |
| Activity Control and Management                                                       |                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Procedures                                                                            | Existence of procedures for all activities.<br>Existence of policies – standardisation, quality, operational and maintenance, etc.<br>Correctness of procedures – if in place.              | <b>Adequate:</b> Required Procedures and Policies are in place. Procedures and Policies with regard to the water and sewerage infrastructure are managed by the Civil Engineering Services Directorate. Water Services Bylaw is in place.                                                                                                                                                                                                                                                                                                    |
| Record Keeping                                                                        | Existence of record keeping system.<br>Process of data.<br>Actions activated.                                                                                                               | <b>Adequate, but can be improved further:</b> Record keeping of information required for the Monthly Reports are kept up to date. The record keeping of certain information is also linked to specific water and sanitation KPIs in the SDBIP. Municipality to implement recommended O&M Control Sheets for groundwater, surface water, bulk water and reticulation networks and fittings, WTWs, WWTWs, water and sewer PSs, reservoirs, remote monitoring and control systems and bulk and sewer drainage networks as included in the WSDP. |
| Quality Controls                                                                      | Quality management plan.<br>Quality assurance.<br>Quality control (Inspections, Control charts, trend analysis).<br>Process adjustment and rework.<br>Quality improvement.                  | <b>Adequate:</b> Required quality control mechanisms are in place to ensure high quality of materials and to ensure that all work carried out on the water and sewerage infrastructure is of a high quality. The Civil Engineering Services Directorate monitors all work carried out by Consultants and Contractors.                                                                                                                                                                                                                        |
| Risk Management                                                                       | Risk management planning.<br>Risk identification.<br>Risk probability and impact assessment.<br>Risk response planning.<br>Risk monitoring and control.                                     | <b>Adequate:</b> Required Risk Management Protocols are in place, which is followed by the personnel. Potential risks/incidents and control measure to reduce or manage these risks were identified as part of the Water Safety Plan and W <sub>2</sub> RAP processes.                                                                                                                                                                                                                                                                       |
| Reporting                                                                             | Production and activity reporting (Completeness, evaluation and action activation).<br>Management reporting (Completeness and evaluation and action activation).<br>Performance monitoring. | <b>Adequate:</b> The Director Civil Engineering Services report on a monthly basis to Council on all the required water and sanitation information. A SDBIP is also in place, linked to specific water and sanitation KPIs, which allows for proper performance monitoring.                                                                                                                                                                                                                                                                  |

Pipe bursts and other serious damage to pipes immediately interrupts services to the affected area and is rapidly addressed by Swartland Municipality. O&M is a continuous process for Swartland Municipality involving various activities, with the ultimate purpose of delivering good quality services to all customers at all times and keeping the percentage of water lost through pipe bursts and other serious damage to pipes as low as possible. Swartland Municipality's O&M Plan depends on a range of factors such as the age and condition of the water supply system, requirements of the Municipality and DWS as the regulating authority, the availability of staff, plant, equipment, spares, money and other resources.

Swartland Municipality have standby teams available after hours and over weekends, besides the planned and scheduled O&M activities, in order to allow for unscheduled responses to service breakdowns due to malfunctioning equipment, vandalism, emergency situations, etc. This allows Swartland Municipality to be able to quickly assess service breakdowns and re-allocate staff and resources to do unscheduled repairs, and then quickly return to the regular and scheduled O&M activities. The Municipality also ensure that sufficient repair materials, consumables and back-up equipment are also readily available for any potential breakdowns.

A budget of approximately 2% of the total asset value per annum should be allocated towards the replacement of existing infrastructure. In the case of the operations and maintenance of the systems, a budget of approximately 1% to 2% of the value of the system is typically required to ensure that the systems remain in good condition.

The table below gives an overview of the Opening Cost and Book Value of the water and sewerage infrastructure included in Swartland Municipality's Asset Register (June 2025). The recommended budgets for the replacement of the existing infrastructure and the operation and maintenance of the existing infrastructure, based on the CRC, are also indicated.

| Table C.7.3: Recommended budgets for the replacement and the operation and maintenance of the existing water and sewerage infrastructure. |                          |                     |                                              |                                                       |                                               |                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------|----------------------------------------------|-------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------|
| Asset Type                                                                                                                                | Asset Register June 2025 |                     | WSDP CRC of Internal and Bulk infrastructure | Recommended Annual Replacement Budget (Best Practice) | Recommended Annual O&M Budget (Best Practice) | Depreciation, Property, Plant and Equipment: Actual Expenditure |
|                                                                                                                                           | Opening Cost             | Book Value          |                                              | 2.0% of CRC                                           | 1.5% of CRC                                   | 2024/2025                                                       |
| Borehole                                                                                                                                  | R1 776 952               | R1 089 139          | R3 180 000                                   | R63 600                                               | R47 700                                       | R17 227 074                                                     |
| Pump Station                                                                                                                              | R24 685 420              | R16 827 201         | R82 181 800                                  | R1 643 636                                            | R1 232 727                                    |                                                                 |
| Reservoir                                                                                                                                 | R427 909 147             | R169 894 278        | R436 091 420                                 | R8 721 828                                            | R6 541 371                                    |                                                                 |
| Reticulation Pipeline                                                                                                                     | R389 454 475             | R218 337 560        | Included under Bulk Water Pipeline           | -                                                     | -                                             |                                                                 |
| Bulk Water Pipeline                                                                                                                       | R24 475 168              | R20 892 397         | R1 618 536 260                               | R32 370 725                                           | R24 278 044                                   |                                                                 |
| Dam                                                                                                                                       | R30 352 150              | R672 926            | -                                            | -                                                     | -                                             |                                                                 |
| WTW                                                                                                                                       | R23 731 966              | R14 009 440         | R327 743 520                                 | R6 554 870                                            | R4 916 153                                    |                                                                 |
| Other Assets                                                                                                                              | R6 802 015               | R12 936 801         | -                                            | -                                                     | -                                             |                                                                 |
| <b>Sub Total Water</b>                                                                                                                    | <b>R929 187 293</b>      | <b>R454 659 740</b> | <b>R2 467 733 000</b>                        | <b>R49 354 659</b>                                    | <b>R37 015 995</b>                            | <b>R17 227 074</b>                                              |
| Sewer Pump Station                                                                                                                        | R22 176 280              | R14 569 334         | R40 319 220                                  | R806 384                                              | R604 788                                      | R26 048 216                                                     |
| Sewage Treatment Works                                                                                                                    | R393 756 356             | R285 320 978        | R617 980 000                                 | R12 359 600                                           | R9 269 700                                    |                                                                 |
| Sewer Reticulation Pipeline                                                                                                               | R388 922 204             | R155 716 627        | Included under Bulk Sewer Pipeline           | -                                                     | -                                             |                                                                 |
| Bulk Sewer Pipeline                                                                                                                       | R64 508 093              | R29 421 385         | R965 863 520                                 | R19 317 270                                           | R14 487 953                                   |                                                                 |
| Other Assets                                                                                                                              | R11 834 985              | R8 296 342          | -                                            | -                                                     | -                                             |                                                                 |
| <b>Sub Total Sewerage</b>                                                                                                                 | <b>R881 197 918</b>      | <b>R493 324 666</b> | <b>R1 624 162 740</b>                        | <b>R32 483 254</b>                                    | <b>R24 362 441</b>                            | <b>R26 048 216</b>                                              |
| <b>Total Water and Sewerage</b>                                                                                                           | <b>R1 810 385 211</b>    | <b>R947 984 406</b> | <b>R4 091 895 740</b>                        | <b>R81 837 913</b>                                    | <b>R61 378 436</b>                            | <b>R43 275 290</b>                                              |

Most of the major replacement of old water and sewerage infrastructure in Swartland Municipality is done through the Municipality's annual capital budget. The capital budget however also includes new infrastructure. The table below gives an overview of the total historical water and sewerage capital expenditure for the last six financial years.

| Table C.7.4: Historical water and sewerage capital expenditure |                    |                    |                    |                    |                    |                    |
|----------------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Infrastructure                                                 | 24/25              | 23/24              | 22/23              | 21/22              | 20/21              | 19/20              |
| Water                                                          | R42 190 544        | R20 677 630        | R29 401 179        | R9 323 980         | R64 161 385        | R9 658 726         |
| Sewerage                                                       | R31 729 870        | R12 379 438        | R14 952 473        | R63 296 662        | R2 353 219         | R14 507 999        |
| <b>Total</b>                                                   | <b>R73 920 414</b> | <b>R33 057 068</b> | <b>R44 353 652</b> | <b>R72 620 642</b> | <b>R66 514 604</b> | <b>R24 166 725</b> |

## C.8. Water Resources

The Western Cape experienced a severe drought over the period 2015 to 2017, with some relief during the winter months of the following years. This drought over the period 2015 to 2017 impacted severely on the assurance of bulk water supply by the West Coast District Municipality to Swartland Municipality from the WCWSS and the yield of the Municipality's own existing surface and groundwater sources. WC/WDM measures to lower the current water requirements and the augmentation of the West Coast District Municipality's existing water sources, as well as the augmentation of Swartland Municipality's own water resources with groundwater were therefore critical over this period.

Future water requirement projection models were developed for each of the towns within Swartland Municipality's Management Area, which are included in Annexure C. IWA Water Balance models with graphs of the total water requirements (System Input Volume and billed metered consumption), peak month factors, annual NRW and water losses and water usage per sector are included in Annexure A for each of the systems.

The West Coast District Municipality applied to the DWS in December 2013 to increase the allocation from the System to initially 18.087 million m<sup>3</sup>/a for the Withoogte supply area, which is to be increased to 30.3 million m<sup>3</sup>/a by 2033, and to 6.39 million m<sup>3</sup>/a for the Swartland supply area (to be increased to 11.1 million m<sup>3</sup>/a by 2033). The current raw water abstraction Licence No. 01/G10F/A/5903 of October 2017 list the following volumes allocated to the respective WSAs, which include operational, treatment and bulk conveyance losses.

| Table C.8.1: Volumes allocated to the respective WSAs in Licence No. 01/G10F/A/5903 |                   |                 |                       |
|-------------------------------------------------------------------------------------|-------------------|-----------------|-----------------------|
| Name                                                                                | Resource Name     | WSA             | Maximum Volume (Ml/a) |
| Withoogte from Misverstand Weir                                                     | Berg River        | Saldanha LM     | 20 427.000            |
|                                                                                     |                   | Swartland LM    | 1 573.600             |
|                                                                                     |                   | Berg River LM   | 1 439.400             |
| Swartland from Voëlvlei Dam                                                         | Berg River        | Swartland LM    | 7 900.000             |
|                                                                                     |                   | Drakenstein LM  | 300.000               |
| Langebaan Aquifer Boreholes 1 & 2                                                   | Langebaan Aquifer | Saldanha Bay LM | 675.000               |
| Langebaan Aquifer Boreholes 3 & 4                                                   |                   | Saldanha Bay LM | 675.000               |
| Total Allocation for the West Coast District Municipality                           |                   |                 | 32 990.000            |
| Total Allocation for the West Coast District Municipality from the WCWSS            |                   |                 | 31 640.000            |

The DWS is currently busy with the updating of the All Towns Reconciliation Strategies for the Western Cape, but updated strategies for Swartland Municipality are not yet available. The table below gives an overview of the recommended potential future water resources, as included in the 2016 All Towns Reconciliation Strategies, for the towns in Swartland Municipality.

| Table C.8.2: Potential future water resources for the various towns (Recommended summary options of DWS's All Towns Reconciliation Strategies, March 2016) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Distribution System                                                                                                                                        | Recommended Summary Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Koringberg                                                                                                                                                 | <p><b>The current water sources do not have adequate supply to cater for the projected future water requirements. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the full implementation of the existing WC/WDM Strategy.</li> <li>Increase the allocation from the Berg River for the Withoogte Regional Water Supply Scheme</li> <li>Groundwater development.</li> </ul>                                                                                                                |
| Riebeek Wes and Ongegend                                                                                                                                   | <p><b>The current water sources do not have adequate supply to cater for the current and longer-term future water requirements. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the existing WC/WDM Strategy in order to reduce water losses and NRW and achieve savings in water consumption.</li> <li>Increase the allocation from the Voëlvlei Dam for the Swartland Regional Water Supply Scheme.</li> <li>Groundwater development.</li> </ul>                   |
| Riebeek Kasteel                                                                                                                                            | <p><b>The current water sources do not have adequate yields available to cater for the current and longer-term future water requirements. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the existing WC/WDM Strategy.</li> <li>Increased allocation for the Swartland Regional Water Supply Scheme from the Voëlvlei Dam (WCWSS).</li> <li>Groundwater development</li> <li>Re-use of water</li> <li>Rainwater harvesting.</li> </ul>                              |
| Yzerfontein                                                                                                                                                | <p><b>The current water sources do not have adequate supply to cater for the current and longer-term future water requirements. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the existing WC/WDM Strategy.</li> <li>Increased allocation for the Swartland Regional Water Supply Scheme from the Voëlvlei Dam (WCWSS).</li> <li>Desalination of seawater for Saldanha and environs to make more water available for Yzerfontein from the Voëlvlei Dam.</li> </ul> |
| Darling                                                                                                                                                    | <p><b>The current water sources do not have adequate supply to cater for the projected future water requirements of Darling. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the existing WC/WDM Strategy.</li> <li>Increased allocation for the Swartland Regional Water Supply Scheme from the Voëlvlei Dam (WCWSS).</li> <li>Consider re-use of water.</li> <li>Groundwater development.</li> </ul>                                                               |
| Moorreesburg                                                                                                                                               | <p><b>The current water sources do not have adequate supply to cater for the longer-term future water requirements. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the implementation of the existing WC/WDM Strategy.</li> </ul>                                                                                                                                                                                                                                                         |

| Table C.8.2: Potential future water resources for the various towns (Recommended summary options of DWS's All Towns Reconciliation Strategies, March 2016) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Distribution System                                                                                                                                        | Recommended Summary Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                            | <ul style="list-style-type: none"> <li>An increased allocation from the Berg River for the Withoogte Regional Water Supply Scheme.</li> <li>Groundwater development.</li> <li>Re-use of water.</li> <li>Rainwater harvesting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Malmesbury and Abbotsdale                                                                                                                                  | <p><b>The current water sources do not have adequate supply to cater for the current and longer-term future water requirements. The following sources are identified as potential sources to augment the water supply:</b></p> <ul style="list-style-type: none"> <li>Continue with the full implementation of the existing WC/WDM Strategy in order to keep the water losses and NRW as low as possible and achieve savings in water consumption.</li> <li>Increased allocation for the Swartland Regional Water Supply Scheme from the Voëlvlei Dam (WCWSS).</li> <li>Water re-use.</li> <li>Groundwater development for smaller communities.</li> </ul> |

Detailed future water requirement projection models were developed for each of the water distribution systems. The future water requirements are indicated in the table below per system. These models include the future projections up to 2049 and were calibrated by using historic billed metered consumption data and bulk abstraction data. The percentage of NRW was determined for each of the distribution systems and growth in future water requirement was based on agreed population and growth figures.

| Table C.8.3: Projected future water requirements of towns    |                        |                                            |                  |                   |                   |                   |
|--------------------------------------------------------------|------------------------|--------------------------------------------|------------------|-------------------|-------------------|-------------------|
| Distribution System                                          | Model                  | PROJECTED FUTURE WATER REQUIREMENTS (Ml/a) |                  |                   |                   |                   |
|                                                              |                        | 2029                                       | 2034             | 2039              | 2044              | 2049              |
| Moorreesburg                                                 | 2% Annual Growth       | 893.179                                    | 986.142          | 1 088.781         | 1 202.102         | 1 327.217         |
|                                                              | 4% Annual Growth       | 984.248                                    | 1 197.488        | 1 456.927         | 1 772.575         | 2 156.608         |
|                                                              | <b>WSDP Model</b>      | <b>877.474</b>                             | <b>970.387</b>   | <b>1 078.431</b>  | <b>1 204.097</b>  | <b>1 350.348</b>  |
| Koringberg                                                   | 2% Annual Growth       | 75.963                                     | 83.869           | 92.598            | 102.236           | 112.877           |
|                                                              | 4% Annual Growth       | 83.708                                     | 101.844          | 123.909           | 150.754           | 183.415           |
|                                                              | <b>WSDP Model</b>      | <b>79.698</b>                              | <b>93.602</b>    | <b>110.133</b>    | <b>129.806</b>    | <b>153.239</b>    |
| <b>Total for Withoogte System</b>                            | <b>Low Projection</b>  | <b>969.142</b>                             | <b>1 070.011</b> | <b>1 181.379</b>  | <b>1 304.338</b>  | <b>1 440.094</b>  |
|                                                              | <b>High Projection</b> | <b>1 067.956</b>                           | <b>1 299.332</b> | <b>1 580.836</b>  | <b>1 923.329</b>  | <b>2 340.023</b>  |
|                                                              | <b>WSDP Model</b>      | <b>957.172</b>                             | <b>1 063.989</b> | <b>1 188.564</b>  | <b>1 333.903</b>  | <b>1 503.587</b>  |
| Malmesbury                                                   | 2% Annual Growth       | 4 022.118                                  | 4 440.743        | 4 902.939         | 5 413.241         | 5 976.655         |
|                                                              | 4% Annual Growth       | 4 432.213                                  | 5 392.465        | 6 560.758         | 7 982.165         | 9 711.524         |
|                                                              | <b>WSDP Model</b>      | <b>3 938.854</b>                           | <b>4 586.293</b> | <b>5 362.846</b>  | <b>6 297.282</b>  | <b>7 425.231</b>  |
| Darling                                                      | 2% Annual Growth       | 693.915                                    | 766.138          | 845.878           | 933.918           | 1 031.121         |
|                                                              | 4% Annual Growth       | 764.666                                    | 930.334          | 1 131.893         | 1 377.121         | 1 675.478         |
|                                                              | <b>WSDP Model</b>      | <b>659.621</b>                             | <b>717.853</b>   | <b>783.587</b>    | <b>857.949</b>    | <b>942.261</b>    |
| Riebeek Kasteel                                              | 2% Annual Growth       | 428.249                                    | 472.821          | 522.033           | 576.366           | 636.355           |
|                                                              | 4% Annual Growth       | 471.913                                    | 574.154          | 698.546           | 849.888           | 1 034.019         |
|                                                              | <b>WSDP Model</b>      | <b>486.461</b>                             | <b>627.157</b>   | <b>815.607</b>    | <b>1 068.884</b>  | <b>1 410.310</b>  |
| Riebeek Wes                                                  | 2% Annual Growth       | 211.731                                    | 233.768          | 258.099           | 284.962           | 314.621           |
|                                                              | 4% Annual Growth       | 233.319                                    | 283.868          | 345.369           | 420.194           | 511.230           |
|                                                              | <b>WSDP Model</b>      | <b>219.797</b>                             | <b>258.467</b>   | <b>306.204</b>    | <b>365.554</b>    | <b>439.846</b>    |
| Ongegund (PPC)                                               | 2% Annual Growth       | 24.752                                     | 27.329           | 30.173            | 33.313            | 36.781            |
|                                                              | 4% Annual Growth       | 27.276                                     | 33.186           | 40.375            | 49.123            | 59.765            |
|                                                              | <b>WSDP Model</b>      | <b>24.318</b>                              | <b>26.911</b>    | <b>29.875</b>     | <b>33.269</b>     | <b>37.161</b>     |
| Yzerfontein                                                  | 2% Annual Growth       | 387.190                                    | 427.489          | 471.983           | 521.107           | 575.344           |
|                                                              | 4% Annual Growth       | 426.668                                    | 519.107          | 631.573           | 768.405           | 934.882           |
|                                                              | <b>WSDP Model</b>      | <b>391.841</b>                             | <b>452.520</b>   | <b>524.149</b>    | <b>608.890</b>    | <b>709.357</b>    |
| <b>Total for Swartland System</b>                            | <b>Low Projection</b>  | <b>5 767.955</b>                           | <b>6 368.288</b> | <b>7 031.105</b>  | <b>7 762.907</b>  | <b>8 570.877</b>  |
|                                                              | <b>High Projection</b> | <b>6 356.055</b>                           | <b>7 733.114</b> | <b>9 408.514</b>  | <b>11 446.896</b> | <b>13 926.898</b> |
|                                                              | <b>WSDP Model</b>      | <b>5 720.892</b>                           | <b>6 669.201</b> | <b>7 822.268</b>  | <b>9 231.828</b>  | <b>10 964.166</b> |
| <b>All towns in Swartland Municipality's Management Area</b> | <b>Low Projection</b>  | <b>6 737.097</b>                           | <b>7 438.299</b> | <b>8 212.484</b>  | <b>9 067.245</b>  | <b>10 010.971</b> |
|                                                              | <b>High Projection</b> | <b>7 424.011</b>                           | <b>9 032.446</b> | <b>10 989.350</b> | <b>13 370.225</b> | <b>16 266.921</b> |
|                                                              | <b>WSDP Model</b>      | <b>6 678.064</b>                           | <b>7 733.190</b> | <b>9 010.832</b>  | <b>10 565.731</b> | <b>12 467.753</b> |



The table below gives an overview of the years in which the annual water requirements are likely to exceed the licence volumes from the WCWSS.

| Table C.8.4: Years in which the annual water requirements are likely to exceed the total licence volumes for Swarthland Municipality from the WCWSS |                                                         |                                                |                                                 |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|-------------------------------------------------|-----------------------|
| Distribution System                                                                                                                                 | Total Licence Volume for Swarthland Municipality (Ml/a) | Annual Growth on 2024/2025 Demand (Low Growth) | Annual Growth on 2024/2025 Demand (High Growth) | WSDP Projection Model |
| Withoogte System                                                                                                                                    | 1 573.600                                               | 2048                                           | 2036                                            | 2046                  |
| Swarthland System                                                                                                                                   | 7 900.000                                               | Over                                           | Over                                            | Over                  |

Note: The severe drought in the Western Cape, over the period 2015 to 2017, impacted on the assurance of supply from the WCWSS, which resulted in severe water restrictions implemented by the Swarthland Municipality in order to lower the current water requirements and to ensure that the systems don't "run dry" during the drought period.

A number of resource augmentation studies were previously completed by the DWS for the WCWSS, by the West Coast District Municipality for the West Coast Region and by Swarthland Municipality for the towns in their Management Area. A desktop study of these previous augmentation studies was completed during the last financial year. The Conclusions and the Recommendations from the desktop study are indicated below.

**Resource Augmentation Desktop Study Conclusions:** The overall water requirements of the towns in Swarthland Municipality in 2015/2016 was 5 483 Ml/a (15.025 Ml/d), which came down to a low of 3 442 Ml/a (9.431 Ml/d) in 2017/2018, due to the drought and the water restrictions and WC/WDM measures implemented by the Municipality. This is a reduction of 37.2% over a two-year period. There was a steady increase in water requirements again over the period 2018/2019 and 2019/2020. The likely "bounce back" after the drought is uncertain, but it is estimated that it would probably take about four to six years after 2017/2018 to reach the same water requirements as the period before the drought (2015/2016).

The future water requirements for the Swarthland Voëlvlei and the Swarthland Withoogte (Only Moorreesburg and Koringberg) bulk water distribution systems are expected to increase to 5 945 Ml/a and 1 180 Ml/a (High growth) by 2029. These volumes are still less than the new licence volumes of 7 900 Ml/a and 1 573.6 Ml/a that were issued in 2017.

Comprehensive historical metered data of the water requirements for the two bulk water distribution systems and the towns in Swarthland Municipality's Management Area are available, which assist with the future requirement projections for the systems.

Various water resource augmentation studies/investigations were done over the last number of years for the West Coast Region, the WCWSS and the towns in Swarthland Municipality's Management Area. These studies recommended various augmentation projects for the various systems. Most of the studies were done in the period before the drought in the Western Cape.

**WC/WDM:** The Withoogte and Swarthland Voëlvlei bulk water distribution systems are already well managed with regard to reducing treatment losses and bulk water distribution losses. The scope to make additional water available through the implementation of specific WC/WDM measures is very limited. Swarthland Municipality's NRW and Water Losses for their internal distribution systems (towns) for 2019/2020 was 15.93% and 15.73% respectively, which is also very low. A comprehensive WC/WDM Strategy is in place for the Municipality and the estimated volume of water saved on System Input Volume for the next five and ten years, with the implementation of the additional WC/WDM measures, is 342.098 Ml/a for 2024 and 441.191 Ml/a for 2029 respectively. Swarthland Municipality is committed to continue with the implementation of their WC/WDM Strategy.

**Reliability of Supply from the WCWSS:** The towns in Swarthland Municipality nearly ran out of water in 2018, due to the limited supply from the WCWSS and the low levels of the Voëlvlei dam. A combined effort by the Municipality, residents, business and government helped avoid a potential catastrophe through dramatic reduction of water use. Exclusive reliance on rainfall fed dams (WCWSS) is no longer wise over the longer term and Swarthland Municipality must adopt a precautionary approach to water resource management in dealing with climate uncertainty and the future supply from the system.

**WCWSS Augmentation Options:** Various studies for the augmentation of the WCWSS were completed by the DWS over the last number of years. The Berg River to Voëlvlei Augmentation Scheme (BRVAS) was identified as the next surface water scheme in 2015 by the National DWS. It will form an integral part of the WCWSS and is being implemented by the TCTA. The URV of the proposed scheme was estimated at R1-31/kl in 2012. Assuming that the construction costs have escalated at 6% per annum in real terms then the 2021 URV would be R3-71/kl, including R1-50/kl for treatment costs. The growth in the West Coast's requirements could also be supplied from the BRVAS, depending on the actual growth in water requirements. The TCTA is currently in discussion with water users to formulate an institutional approach and to make a decision on a funding model. Indications are that water users from the WCWSS, including the CCT, are supportive of the project, currently scheduled for completion by mid-2023.

**Supply from the CCT at their Bulk Tariff:** One of the augmentation options available to Swartland Municipality is to purchase treated water from the CCT, for supply from Atlantis to Chatsworth and Riverlands. The estimated cost of a pipeline from Atlantis to Chatsworth and Riverlands is R15.320 million and the annual purchase cost of the potable water will be roughly R1.5 million per year, against the current bulk purchase tariff of R8-13/kl of the CCT.

One of the CCT's current resource augmentation projects is the Atlantis Managed Aquifer Recharge Scheme Refurbishment project, with which the City is currently busy, and this scheme will therefore be independent from the WCWSS. The benefits of supplying Chatsworth and Riverlands with potable water from Atlantis are as follows:

- The Atlantis scheme is a groundwater scheme and the risk associated with surface water sources and the impact of less rainfall on the yield of the system (WCWSS) will therefore not be applicable for the supply to Chatsworth and Riverlands.
- More water will be available for Swartland Municipality's other towns, that are still dependent on supply from the WCWSS, if Chatsworth and Riverlands are supplied from the CCT.
- It will not be necessary to supply potable water from Kalbaskraal to Chatsworth and Riverlands anymore.

**Surface Water Source Options:** There are no other surface water sources located in close proximity to the various towns in Swartland Municipality's Management Area. The current supply from the WCWSS (from the Misverstand weir and the Voëlvlei dam) is the only real surface water sources available to the Municipality and where the required bulk water infrastructure is already in place.

**Groundwater Options:** The Pre-Feasibility Study of Potential Water Sources for the Area Served by the West Coast District Municipality Phase 1: Assessment of Development Potential of Groundwater Resources identified various target areas that can be investigated further by Swartland Municipality for possible groundwater augmentation schemes. The URVs of developing groundwater within the various proposed exploration target areas varies from R3-07/m<sup>3</sup> to R12-73/m<sup>3</sup>.

Three existing production boreholes are already utilised in Riverlands and there is a possibility that the two newly drilled boreholes can also be commissioned and connected to the system. Koringberg and Riebeek Wes are the only other towns where the yields of the newly drilled boreholes are adequate to provide a high percentage of the town's existing demand. The groundwater will however require additional treatment and blending options will need to be considered.

The Desktop Feasibility Study into water supply to Yzerfontein from the Grootwater Aquifer indicated a URV of R25-39/kl for a groundwater supply scheme for Yzerfontein for water supply. The Study also indicated that a separate investigation has to be carried out into the Colenso Fault Zone close to Darling, based on boreholes with depths of between 100m and 150m, if the Municipality considers supplying Darling with groundwater.

**Water reuse Options:** Adequate treated effluent needs to be available for any water reuse scheme to be sustainable. The effluent quality from the respective WWTWs and the design of the necessary barriers to ensure the health and safety of the public are some of the most important considerations.



53.3% Of the total treated effluent discharged from the WWTW in 2019/2020 was already reused by end-users for irrigation and agricultural purposes. Therefore, there is limited scope for additional reuse options to be implemented at the Darling-, Moorreesburg-, Riebeek Valley- and Malmesbury WWTW. Swartland Municipality will continue to reuse treated effluent from the four main WWTWs for irrigation purposes and options of “indirect use” and “direct use” are only seen as long-term possible interventions.

**Desalination Options:** The West Coast District Municipality previously proposed to construct and operate a sea water desalination plant in the Saldanha Bay area using sea water reverse osmosis (SWRO) technology. The proposed desalination plant and bulk infrastructure will cost an estimated R500 million, R300 million more than the original cost estimate. This project is however currently on hold, due to inadequate funding.

Yzerfontein is the only town in Swartland Municipality’s Management Area where desalination is an option for future water supply. The town’s 2019/2020 PDD was 1.552 MI/d and it is expected to increase to a PDD of 1.887 MI/d by 2029. The estimated capital cost for a desalination plant at Yzerfontein, with the marine infrastructure included, is roughly R35 million/MI. It will also be very difficult to obtain environmental authorisation for the construction of a desalination plant at Yzerfontein due to the sensitivity of the coastal area.

**Resource Augmentation Desktop Study Recommendations:** The following recommendations with regard to water resource augmentation options available to Swartland Municipality were made based on the findings and conclusions contained in this desktop study:

- Swartland Municipality should continue to implement their WC/WDM Strategy for both the bulk water distribution systems and the internal water reticulation systems of the towns. Treatment Losses, NRW and Water Losses need to be monitored on a monthly basis.
- Investigate the cost of small groundwater schemes for Koringberg and Riebeek Wes. These are the only two towns where the yields of the newly drilled boreholes are adequate to provide a high percentage of the town’s existing demand. The groundwater will require additional treatment and blending options will need to be considered.
- Compile a Feasibility Study for a bulk groundwater augmentation scheme for the Swartland Voëlvlei bulk water distribution system from the target areas included in the “Pre-Feasibility Study of Potential Water Sources for the Area Served by the West Coast District Municipality Phase 1: Assessment of Development Potential of Groundwater Resources” Report.
- The URV of R25-39/kl for a groundwater supply scheme for Yzerfontein from the Grootwater Aquifer is high and should be seen as a possible medium- to long-term possible intervention.
- An investigation has to be carried out into the Colenso Fault Zone close to Darling if the Municipality considers supplying Darling with groundwater. A possible groundwater scheme for Darling should be seen as a possible medium- to long-term possible intervention.
- Continue to reuse treated effluent from the four main WWTWs for irrigation purposes in order to reduce the demand for potable water used for irrigation purposes (Parks, Sport Fields, etc.). The options of “indirect potable reuse” and “direct potable reuse” of treated effluent should be seen as long-term possible interventions.
- Swartland Municipality should engage with the CCT with regard to the following:
  - The CCT’s programme for implementing the additional infrastructure to provide the proposed 1 in 200 year level of assurance of supply (Atlantis Managed Aquifer Recharge Scheme Refurbishment Project).
  - The possibility of supplying the towns of Chatsworth and Riverlands with potable water from Atlantis.

- The other options available to Swartland Municipality to purchase bulk potable water from the CCT, which include the following.
  - (1) Purchase potable water from the CCT through their Voëlvlei bulk water pipeline, which supply the Platteklouf reservoir.
  - (2) The possibility for the CCT to take over the Swartland WTW and to provide potable water to Gouda and the Swartland Municipality from the WTW.
  - (3) Any possible other arrangements with the CCT.
- Swartland Municipality should engage with DWS and the TCTA to discuss the options available for an increased future allocation from the WCWSS for Swartland Municipality, through the implementation of the Berg River Voëlvlei Augmentation Scheme (BRVAS) project or the other future augmentation projects.
- Engage with Saldanha Bay Municipality and the West Coast District Municipality if the proposed Saldanha Bay desalination plant project is started. A possible desalination plant for Yzerfontein should only be seen as a long-term possible intervention.

An Investigation, Feasibility Study and Cost Estimation was completed for the proposed Chatsworth / Riverlands Bulk Water Supply Upgrades in June 2024. The conclusions and recommendations from the study were as follows:

**Conclusions:** The Pella, Riverlands, and Kalbaskraal areas in Swartland Municipality are expected to grow in the near future, increasing their requirements for potable water. Currently, the existing bulk supply infrastructure to these areas is constrained and is insufficient to cater for the anticipated future water demand, and thus requires upgrading.

It was determined that extensive upgrades to the existing bulk infrastructure would be needed in order to accommodate these areas, costing approximately R90.9 million (2021/2022 Rand Value, including preliminary and general costs, contingencies and professional service provider fees, but excluding VAT, EIA studies, registration of servitudes and possible land acquisition) (GLS, 2020b).

The June 2020 Water Master Plan proposed that Swartland Municipality investigate purchasing water from the CCT and constructing a bulk pipeline connecting the Pella Reservoirs to the Chatsworth Reservoirs.

A pipeline connecting Pella Reservoirs to Chatsworth's Reservoirs is possible. From review of previous reports, a site investigation, and discussion with impacted parties and landowners, a recommended possible pipeline route was determined. Despite trying to minimize impact on the public, private landowners, affected parties and the environment, the recommended route will have some degree of impact, which will need to be considered in future design, construction, and operation and maintenance phases.

Based on this investigation and available information, the cost estimate to implement the recommended option is R32.23 million. This estimate is at 2024 Rand Value, excludes VAT, and includes rough estimates for fees, investigations, disbursements, P&G, and contingencies. As stated earlier, investigation into the agreement that would be required between CCT and Swartland Municipality in order to purchase water for Chatsworth and surrounding areas is outside the scope of this study. It should be noted, however, that a lengthy consultation process is anticipated to finalise the agreement; possibly between 12 to 18 months. This process is likely to delay construction of the pipeline and may result in water being available after demand is realised in Chatsworth and surrounding areas.

#### **The Recommendations from the investigation were as follows:**

- Proceed with further investigation into the sourcing of potable water from CCT to serve Chatsworth and surrounding areas.
- Conduct economic analysis and comparative costing of alternative upgrading options to supply Chatsworth.

- Conduct a cost-benefit analysis, including consideration of possible increased water security given that CCT is currently augmenting their bulk water supply with alternative water sources to surface water.
- Proceed with the consultation with CCT on requirements

**Industrial Effluent:** Special application must be made to discharge industrial effluent into the sewage disposal system including detailed information to ensure the composition of the effluent meets the standards and criteria of the Municipality. The Municipality's Water Services By-laws, with regard to the discharge of industrial effluent into the sewer system, were promulgated and all industrial consumers formally apply for the discharge of industrial effluent into the sewer system. An external accredited laboratory monitors the industrial effluent of the industrial consumers in Darling, Moorreesburg and Malmesbury on a weekly basis. The industrial effluent sample results and graphs indicating the pH and COD compliances are included in Annexure D. The compliance percentages for the quality of industrial effluent discharged into the municipality's sewer system are summarised in the table below for the last three financial years.

| Table C.8.5: Compliance percentages of industrial effluent discharged by industrial consumers per parameter |                     |               |           |           |                |           |           |
|-------------------------------------------------------------------------------------------------------------|---------------------|---------------|-----------|-----------|----------------|-----------|-----------|
| Town                                                                                                        | Industrial Consumer | pH Compliance |           |           | COD Compliance |           |           |
|                                                                                                             |                     | 2024/2025     | 2023/2024 | 2022/2023 | 2024/2025      | 2023/2024 | 2022/2023 |
| Darling                                                                                                     | Consumer No.1       | 60.0%         | 55.6%     | 84.0%     | 88.9%          | 88.9%     | 92.0%     |
|                                                                                                             | Consumer No.2       | 39.5%         | 10.0%     | 51.0%     | 73.7%          | 56.7%     | 80.4%     |
|                                                                                                             | Consumer No.3       | 80.4%         | 100.0%    | 84.3%     | 97.8%          | 100.0%    | 100.0%    |
| Moorreesburg                                                                                                | Consumer No.4       | 47.5%         | 88.5%     | 84.4%     | 100.0%         | 96.2%     | 100.0%    |
| Malmesbury                                                                                                  | Consumer No.5       | -             | -         | 100.0%    | -              | -         | 95.7%     |
|                                                                                                             | Consumer No.6       | 100.0%        | 87.2%     | 100.0%    | 100.0%         | 92.5%     | 100.0%    |
|                                                                                                             | Consumer No.7       | -             | 0.0%      | 1.9%      | -              | 3.3%      | 3.8%      |
|                                                                                                             | Consumer No.8       | 10.8%         | 6.7%      | 17.6%     | 97.3%          | 83.3%     | 100.0%    |
|                                                                                                             | Consumer No.9       | 45.7%         | 50.0%     | 7.1%      | 80.4%          | 96.7%     | 73.2%     |

## C.9. Water Services Institutional Arrangements and Customer Services

Swartland Municipality is the WSA for the entire Municipal Management Area. A Service Level Agreement is in place with the West Coast District Municipality for the provision of bulk potable water to most of the towns in Swartland Municipality's Management Area. The West Coast District Municipality operate and maintain the Withoogte and Swartland bulk water distribution systems.

The DWS also approved the additional requested allocation of 1 000 Ml/a over and above the initial allocation of 660 Ml/a from the planned Berg River Voëlvllei Augmentation Scheme (BRVAS), which gives Swartland Local Municipality a total allocation of 1 660 Ml/a from the planned scheme.

The 2022-2027 WSDP was approved by the Swartland Municipality's Council on the 25<sup>th</sup> of July 2024. Swartland Municipality annually compile WSDP Performance- and Water Services Audit Reports and take it to Council with the Municipality's Annual Report.

The education of users where sanitation facilities are upgraded to waterborne systems is on-going. This is primarily focussed on informing users of the appropriate use of and routine maintenance of such facilities.

**Municipal Strategic Self-Assessment (MuSSA):** Overseen by the DWS the MuSSA conveys an overall business health of municipal water business and serves as a key source of information around municipal performance. The MuSSA also identifies key municipal vulnerabilities that are strategically important to DWS, the Department of Cooperative Government (DCoG), National Treasury, the planning Commission/Office of the Presidency, the South African Local Government Association (SALGA) and the municipalities themselves. The MuSSA team continues to engage (1) DWS directorates and their associated programmes (e.g. Water Services Development Plan, Water Services Regulation), and (2) other sector departments and their associated programmes (e.g. LGTAS, MISA) to minimize duplication and ensure alignment. Through the tracking of current and likely future performance, the key areas of vulnerability identified, allow municipalities to effectively plan and direct appropriate resources that will also enable DWS and the sector to provide more effective support.

The Spider Diagram below effectively indicates the vulnerability levels of Swartland Municipality across the eighteen key service areas, as identified through the Municipal Strategic Self-Assessment of Water Services process.

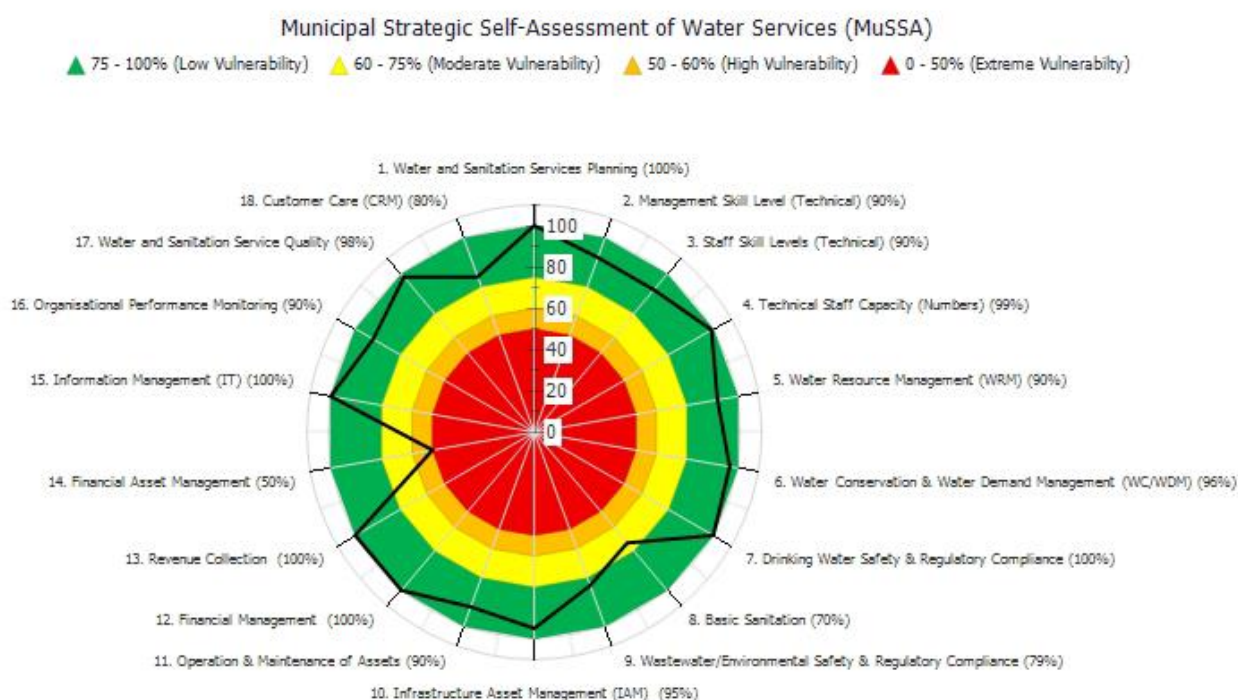


Figure C.9.1: Spider Diagram of the vulnerability levels of Swartland Municipality for 2024

**Swartland Municipality's Vulnerability Index for 2024 was indicated as 0.15 "Low Vulnerability".** The only one area of concern evident from the 2024 assessment is Financial Asset Management, which obtained a score of 50% (High Vulnerability). The vulnerability of all the other key service areas are low, except basic sanitation that is moderate.

| Table C.9.1: Municipal Strategic Self-Assessment (MuSSA) of Water Services for Swartland Municipality (2024)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Vulnerability |
| <b>Water and Sanitation Service Quality</b> <ul style="list-style-type: none"> <li>Critical business databases and documents (e.g. as-built drawings, records, manuals, agreements, billing/revenue collection, project and scheme management data, etc.) are current, maintained and stored in secure locations (on-site and off-site, both paper and electronic).</li> <li>Customers have a functional, reliable and safe water supply system with sufficient quantity and flow, good quality and minimal interruptions.</li> <li>All consumers served experience interruptions of less than 48 hours (at any given time) and a cumulative interruption time during the year of less than 15 days.</li> <li>Households in your WSA experience water pressure problems (no flow/partial flow less than 10 litres / minute) (not to be confused with interruption to supply).</li> <li>Customers have a functional, reliable, dignified and safe sanitation system with no blockages resulting in overflows that impact on the environment, including effective collection and treatment of faecal sludge.</li> </ul> | Low (98%)     |
| <b>Customer Care</b> <ul style="list-style-type: none"> <li>A functional customer service system manned by appropriate customer services representatives and using a complaints register, is in place to address complaints and appropriately inform customers of service interruptions, contamination of water, boil water alert, etc.</li> <li>Regular municipal wide customer satisfaction surveys are conducted to determine customer satisfaction levels and inform the Customer Care Management Plan.</li> <li>Please indicate what percentage of the reported water related complaints/callouts are acknowledged, including</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Low (80%)     |

| Table C.9.1: Municipal Strategic Self-Assessment (MuSSA) of Water Services for Swartland Municipality (2024)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Vulnerability     |
| <p>consumer response, within 24 hours.</p> <ul style="list-style-type: none"> <li>Please indicate what percentage of the reported wastewater/sanitation related complaints/callouts are acknowledged, including consumer response, within 24 hours.</li> <li>A comprehensive customer awareness programme (informing customers of water and wastewater system O&amp;M activities, water quality, resource protection / pollution, reporting incidents / security concerns, etc.) is in place and implemented.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |
| <p><b>Water and Sanitation Services Planning</b></p> <ul style="list-style-type: none"> <li>Your appropriate water and sanitation services planning (e.g. WSDP) and associated master planning processes include and are aligned with appropriate Water and Sewage Master Plans, Spatial Development Framework, Water Safety Plans and Wastewater Risk Abatement Plans (W<sub>2</sub>RAPs), and are aligned to your IDP and associated SDBIP targets.</li> <li>You are implementing an up-to-date and adopted municipal water and sanitation services plan (e.g. WSDP).</li> <li>Your current project list addresses existing needs / shortcomings identified through the WSDP and associated master planning process.</li> <li>Project progress is monitored, tracked and reported to municipal top management / council and the Regulator (through the annual water and sanitation services report).</li> <li>Projects identified through your various planning processes have been implemented in the last 3 years.</li> </ul>                   | Low<br>(100%)     |
| <p><b>Water Resource Management (WRM)</b></p> <ul style="list-style-type: none"> <li>The recommendations and actions from the Reconciliation Strategies (Large Systems / All Towns) have been incorporated into your WSDP, master planning and IDP processes.</li> <li>The metered quantity of water available from the resources is sufficient for your future WSA needs (at the stipulated level of abstraction and assurance of supply, and considering possible climate change impacts) (i.e. no shortage in 10 years).</li> <li>The quantity of water available from the resources is sufficient for your future WSA needs (at the stipulated level of assurance of supply) (i.e. no shortage in 10 years).</li> <li>The source water quality is currently acceptable for its purpose.</li> <li>The trend indicates a deteriorating source water quality.</li> </ul>                                                                                                                                                                           | Low<br>(90%)      |
| <p><b>WC/WDM</b></p> <ul style="list-style-type: none"> <li>Your WSA has developed a council approved WC/WDM Strategy, which includes a standard water balance (e.g. modified IWA).</li> <li>Please indicate your percentage Non-Revenue Water (NRW) as per the modified IWA water balance.</li> <li>System input volumes (bulk) to the WSA are accurately monitored using calibrated bulk meters (e.g. check metering).</li> <li>Please indicate what percentage of all connections are metered and billed (residential and non-residential (commercial, industrial, etc.)) on a monthly basis.</li> <li>Your WSA is implementing appropriate intervention programmes to reduce NRW (e.g. minimisation of night flows through pressure management, removal of unlawful connections, leak detection and repairs, consumer education / awareness).</li> </ul>                                                                                                                                                                                        | Low<br>(96%)      |
| <p><b>Drinking Water Safety and Regulatory Compliance</b></p> <ul style="list-style-type: none"> <li>Please indicate your microbiological drinking- water quality compliance for E.Coli (or faecal coliforms) for the communities you are monitoring for the last 12 months.</li> <li>ALL your supply schemes, WTWs, process controllers, monitoring programmes, sample points, laboratories, results, procedures, protocols, etc. are managed with a suitable Water Safety Planning framework.</li> <li>Council have been made aware of high risk / critical water safety plan related issues (including those identified via the Blue Drop Certification programme) that require budget and auctioning, and these issues have been actioned (where applicable).</li> <li>Sufficient funds have been made available to address all these identified water safety related issues.</li> <li>Required corrective actions/remedial measures to address all these identified water safety related issues have been successfully implemented.</li> </ul> | Low<br>(100%)     |
| <p><b>Basic Sanitation</b></p> <ul style="list-style-type: none"> <li>You have formal housing areas that are not fully serviced with sanitation infrastructure.</li> <li>You have informal housing or rural areas that are not fully serviced with sanitation infrastructure.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Moderate<br>(70%) |



| Table C.9.1: Municipal Strategic Self-Assessment (MuSSA) of Water Services for Swartland Municipality (2024)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Vulnerability |
| <ul style="list-style-type: none"> <li>You have a detailed plan and programme to provide safe sanitation to all households (including health and hygiene education and user awareness including Water, Sanitation and Health (WASH) aspects).</li> <li>Your sanitation budget is appropriate for required sanitation programmes (implementation and O&amp;M).</li> <li>You are servicing your basic sanitation facilities (e.g. pit latrines) as per safe sanitation requirements (healthy, environmentally safe, structurally sound, regularly maintained, following faecal sludge management best practices).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                 |               |
| <b>Wastewater / Environmental Safety and Regulatory Compliance</b> <ul style="list-style-type: none"> <li>Please indicate your treated wastewater effluent compliance for COD for your (or your service provider's) WWTWs for the last 12 months.</li> <li>ALL your WWTWs, process controllers, monitoring programmes, sample points, laboratories, results, procedures, protocols, etc. are managed with a suitable wastewater risk abatement framework.</li> <li>Council have been made aware of all W<sub>2</sub>RAP related issues (e.g. pollution incidents, Green Drop deficiencies) that require budget and auctioning, and these issues have been actioned (where applicable).</li> <li>Sufficient funds have been made available to address all identified wastewater and environmental safety related issues.</li> <li>Required corrective actions/remedial measures to address all identified wastewater and environmental safety related issues have been successfully implemented.</li> </ul> | Low<br>(79%)  |
| <b>Infrastructure Asset Management</b> <ul style="list-style-type: none"> <li>You have an appropriate and up-to-date water and sanitation services technical Asset Register (includes asset name, location, condition, extent, remaining useful life, performance and risk). NOTE: This does only not refer to GRAP17 asset register requirements.</li> <li>You have developed an appropriate Infrastructure Asset Management (IAM) Plan for your WSA.</li> <li>You are implementing the IAM outcomes.</li> <li>Budget allocated to implement IAM outcomes is sufficient and is being effectively spent.</li> <li>You conduct annual technical assessments of your water and wastewater related systems (including sources, WTWs, WWTWs, pump stations, network, etc.) and implement required follow-up actions.</li> </ul>                                                                                                                                                                                | Low<br>(95%)  |
| <b>Operation and Maintenance of Assets</b> <ul style="list-style-type: none"> <li>Appropriate maintenance facility(ies) that is (are) secure and stocked with essential equipment (e.g. spare parts), plant and tools is (are) available.</li> <li>Appropriate water and sanitation services infrastructure / equipment planned / preventative maintenance schedules are developed.</li> <li>Appropriate planned / preventative maintenance is performed at all WTWs and associated reservoirs, pump stations and distribution networks.</li> <li>Appropriate planned / preventative maintenance is performed at all WWTWs and associated collection systems and pump stations.</li> <li>Please indicate your infrastructure repairs and maintenance costs as a function of total operating expenditure (%).</li> </ul>                                                                                                                                                                                    | Low<br>(90%)  |
| <b>Information Management</b> <ul style="list-style-type: none"> <li>You have a developed, approved and implemented IT Master Systems Plan (e.g. covering 3-5 years) that addresses your IT business requirements.</li> <li>You have a developed, approved and implemented ICT Technology Master Plan that addresses your current and future IT infrastructure requirements.</li> <li>You have IT systems that support your full range of water and sanitation services business requirements (e.g. billing, GIS, customer care, O&amp;M, asset management).</li> <li>ICT service continuity – Adequate IT security exists with off-site back-ups / archiving of operation critical applications, databases, data, etc. routinely performed in terms of an IT disaster Recovery Plan.</li> <li>You have sufficient budget and staff to keep key IT systems table and up to date as per IT policies and procedures.</li> </ul>                                                                              | Low<br>(100%) |
| <b>Organisational Performance Monitoring</b> <ul style="list-style-type: none"> <li>Appropriate plans, policies and procedures to address Disaster Management / emergencies and other issues (safety, public participation, communication, etc.) are developed and implemented. NOTE: Although Disaster Management is a district function, LMs need to ensure they are aware of their associated roles and responsibilities and have developed a Disaster Management Framework.</li> <li>An organisational performance management system is developed and implemented (i.e. effectively measure,</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                | Low<br>(90%)  |

| Table C.9.1: Municipal Strategic Self-Assessment (MuSSA) of Water Services for Swartland Municipality (2024)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Vulnerability |
| <p>monitor and track water and sanitation services performance indicators).</p> <ul style="list-style-type: none"> <li>A municipal risk management framework is developed and implemented and includes monitoring and tracking of water and sanitation related risks.</li> <li>Effective administration support is available to technical staff to assist with processing work orders, providing order numbers, handling correspondence, etc.</li> <li>"Access to Basic Water and Sanitation Services" progress reports are frequently produced and presented to council for discussion, action and follow-up.</li> </ul>                                                                                                                                                                                                                                                                                                                                          |               |
| <p><b>Financial Management</b></p> <ul style="list-style-type: none"> <li>Financial controls - Please state the audit opinion with regard to your last audit report on the financial statements.</li> <li>Cash flow status – Please state your Cash / Cost Coverage Ratio (excluding Unspent Conditional Grants)</li> <li>Your actual operating expenditure closely reflects your budgeted operating expenditure (i.e. Operating Expenditure Budget Implementation Indicator).</li> <li>Your actual revenue closely reflects your budgeted operating revenue (i.e. Operating Revenue Budget Implementation Indicator).</li> <li>Liabilities (Creditors) - Money is owed by your municipality to major / critical service providers (e.g. Eskom, Water Board, largest contractors, etc.) for more than 30 days from receipt of invoice (NOTE: Ignore disputed invoices).</li> </ul>                                                                                 | Low<br>(100%) |
| <p><b>Revenue Collection</b></p> <ul style="list-style-type: none"> <li>Please indicate the frequency of actual consumer meter readings.</li> <li>Net Surplus / Deficit – Please state your net surplus / deficit from water services activities for the last 12 months (NOTE: This question tests whether your WSA currently has fully cost reflective Water and Sanitation Tariffs, which take into account cost of maintenance and renewal of purification plants and networks and the cost of new infrastructure).</li> <li>Revenue collections - Please state the revenue collection rate in respect to Water and Sanitation Services (%).</li> <li>Revenue Growth – Please state your Water and Sanitation Services revenue growth for the last 12 months (%).</li> <li>Grant dependency – Actual-operating revenue less operational grants / subsidies (e.g. equitable share) sufficiently covers actual operating expenditure.</li> </ul>                  | Low<br>(100%) |
| <p><b>Financial Asset Management</b></p> <ul style="list-style-type: none"> <li>Capital Expenditure (Municipal). Please state your municipal Capital Expenditure as a percentage of Total Expenditure (i.e. Total Operating Expenditure + Capital Expenditure).</li> <li>Capital Expenditure (Water Services). Please state your Capital Expenditure on Water and Sanitation Services as a percentage of Total Capital Expenditure (Capital Expenditure (Municipal)).</li> <li>Asset Renewal. Please state your Asset Renewal investment as percentage of Depreciation Costs.</li> <li>Repairs and Maintenance. Please state your Repairs and Maintenance expenditure as a percentage of Property, Plant and Equipment, Investment Property (Carrying Value).</li> <li>Grant funding of capital expenditure – Please state your reliance on grant funding.</li> </ul>                                                                                              | High<br>(50%) |
| <p><b>Management Skill Level (Technical)</b></p> <ul style="list-style-type: none"> <li>Your council approved technical management organisational organogram meets your business requirements, and key posts are filled (e.g. Technical Director, Water Services Manager, and Sanitation Services Manager).</li> <li>You have sufficient technical management and technical support staff.</li> <li>Technical management and technical support staff have the correct skills / qualifications and experience as per Job Description requirements (e.g. if Job Description requires Pr Eng, Pr Tech or CPM, the staff have these qualifications).</li> <li>Managers and technical support staff regularly attend appropriate water and sanitation services skills development / training to support professionalisation.</li> <li>Key technical managers (e.g. Section 56 and other Senior Management) have signed and monitored Performance Agreements.</li> </ul> | Low<br>(90%)  |
| <p><b>Staff Skill Levels (Technical)</b></p> <ul style="list-style-type: none"> <li>WTWs are operated by staff with the correct skills / qualifications and experience (as per Regulation 2834).</li> <li>WWTWs are operated by staff with the correct skills / qualifications and experience (as per Regulation 2834).</li> <li>Water system plumbers, mechanics and electricians have the correct skills / qualifications and experience.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Low<br>(90%)  |



| Table C.9.1: Municipal Strategic Self-Assessment (MuSSA) of Water Services for Swartland Municipality (2024)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Section                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Vulnerability |
| <ul style="list-style-type: none"> <li>Sewage system plumbers, millwrights, mechanics and electricians have the correct skills/qualifications and experience (including contractors / outsourced resources).</li> <li>Staff regularly attend appropriate water services skills development / training (including safety) (e.g. ESETA courses).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     | Low (99%)     |
| <b>Technical Staff Capacity (Numbers)</b> <ul style="list-style-type: none"> <li>Your council approved technical staff organisational organogram meets your business requirements, and posts are filled (i.e. Superintendent of WTWs / WWTWs and below).</li> <li>WTWs are operated by the appropriate number of staff (as per Regulation 2834).</li> <li>WWTWs are operated by the appropriate number of staff (as per Regulation 2834).</li> <li>You have sufficient water and sewerage/sanitation network operations and repair staff/plumbers including contractors / outsourced resources (i.e. you have the appropriate number of staff).</li> <li>An active mentoring/shadowing programme is in place where experienced staff train younger, inexperienced municipal staff.</li> </ul> |               |

The Municipal staff is continuously exposed to training opportunities, skills development and capacity building at a technical, operations and management level in an effort to create a more efficient overall service to the users. A Workplace Skills Plan is compiled annually and the specific training needs of the personnel, with regard to water and wastewater management are determined annually. The table below gives an overview of the training provided during the 2024/2025 financial year, as taken from the Workplace Skills Plan (Training that impact on Water and Sanitation Services).

| Table C.9.2: Training provided during the 2024/2025 financial year (Workplace Skills Plan) |                                                       |                                                                                        |                |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------|----------------|
| LGSETA Strategic Focus Area                                                                | Municipal Key Performance Area                        | Skills Gap                                                                             | Number Trained |
| Enhancing Infrastructure and Service Delivery                                              | Basic Service Delivery and Infrastructure Development | First Aid Level 1 & 2                                                                  | 3              |
|                                                                                            |                                                       | Plant Management (Sewerages)                                                           | 3              |
|                                                                                            |                                                       | Convey of Dangerous Goods Refresher                                                    | 2              |
|                                                                                            |                                                       | Handling of Dangerous Goods during Warehousing & Storing                               | 2              |
|                                                                                            |                                                       | Further Education and Training Certificate: Wastewater and Water Reticulation Services | 3              |
|                                                                                            |                                                       | NC: Water and Wastewater Reticulation Services                                         | 2              |
|                                                                                            |                                                       | Plumbing                                                                               | 4              |
|                                                                                            |                                                       | FETC: Sanitation Project Coordination/Facilitation                                     | 4              |
|                                                                                            |                                                       | FETC: Water and Wastewater Treatment Process Control Supervision                       | 2              |
| Enhancing Good Governance, Leadership and Management Capabilities                          | Good Governance and the linking of democracy          | Supervisory Practices of Junior Managers                                               | 2              |

The WWTWs in Swartland Municipality's Management Area and the Process Controllers working at these plants were registered according to the new Regulation 3630 requirements of the DWS. The West Coast District Municipality also ensured that the two bulk WTWs and the Process Controllers working at these two plants were also registered according to the new Regulation 3630 requirements.

The Occupational Health and Safety Act contain provisions directing employers to maintain a safe workplace and to minimize the exposure of employees and the public to workplace hazards. It is therefore important for Swartland Municipality to compile a Legal Compliance Audit of all their WWTWs, which will provide the management of Swartland Municipality with the necessary information to establish whether the Municipality is in compliance with the legislation or not. Detail WWTW Process Audits were completed for each of the WWTWs during the last financial year.

Swartland Municipality's Organogram, as approved by Swartland Municipality's Council on the 28<sup>th</sup> of March 2024, which include water and sanitation services, is included in Annexure G. Swartland Municipality is currently effectively managing its water and sanitation services. Urgent attention is however required to address the backlog in infrastructure replacement and refurbishment. All forward planning for water and sanitation services is guided by the Water and Sewer Master Plans.

The staff composition for Water Services for the last three financial years, as taken from the Annual Reports, is indicated in the table below.

| Table C.9.3: Staff composition for Water Services for the last three financial years |                               |                |           |           |                                      |                |                |           |           |                                      |                |                |           |           |                                      |
|--------------------------------------------------------------------------------------|-------------------------------|----------------|-----------|-----------|--------------------------------------|----------------|----------------|-----------|-----------|--------------------------------------|----------------|----------------|-----------|-----------|--------------------------------------|
| Job Level                                                                            | 2024/2025                     |                |           |           |                                      | 2023/2024      |                |           |           |                                      | 2022/2023      |                |           |           |                                      |
|                                                                                      | Approved Posts                | Budgeted Posts | Employees | Vacancies | Vacancies (as a % of budgeted posts) | Approved Posts | Budgeted Posts | Employees | Vacancies | Vacancies (as a % of budgeted posts) | Approved Posts | Budgeted Posts | Employees | Vacancies | Vacancies (as a % of budgeted posts) |
|                                                                                      | No.                           | No.            | No.       | No.       | %                                    | No.            | No.            | No.       | No.       | %                                    | No.            | No.            | No.       | No.       | %                                    |
| 0 – 3                                                                                | Information not yet available |                |           |           |                                      | 15             | 15             | 15        | 0         | 0.00%                                | 12             | 12             | 12        | 0         | 0.00%                                |
| 4 – 6                                                                                |                               |                |           |           |                                      | 12             | 12             | 11        | 1         | 8.33%                                | 12             | 12             | 12        | 0         | 0.00%                                |
| 7 – 9                                                                                |                               |                |           |           |                                      | 6              | 6              | 6         | 0         | 0.00%                                | 5              | 5              | 5         | 0         | 0.00%                                |
| 10 – 12                                                                              |                               |                |           |           |                                      | 6              | 6              | 6         | 0         | 0.00%                                | 6              | 6              | 6         | 0         | 0.00%                                |
| 13 – 15                                                                              |                               |                |           |           |                                      | 2              | 2              | 2         | 0         | 0.00%                                | 2              | 2              | 2         | 0         | 0.00%                                |
| 16 – 18                                                                              |                               |                |           |           |                                      | 0              | 0              | 0         | 0         | 0.00%                                | 0              | 0              | 0         | 0         | 0.00%                                |
| 19 - 20                                                                              |                               |                |           |           |                                      | 0              | 0              | 0         | 0         | 0.00%                                | 0              | 0              | 0         | 0         | 0.00%                                |
| <b>Total</b>                                                                         |                               |                |           |           |                                      | <b>41</b>      | <b>41</b>      | <b>40</b> | <b>1</b>  | <b>2.44%</b>                         | <b>37</b>      | <b>37</b>      | <b>37</b> | <b>0</b>  | <b>0.00%</b>                         |

The staff composition for Waste Water Services for the last three financial years, as taken from the Annual Reports, is indicated in the table below.

| Table C.9.4: Staff composition for Waste Water Services for the last three financial years |                               |                |           |           |                                      |                |                |           |           |                                      |                |                |           |           |                                      |
|--------------------------------------------------------------------------------------------|-------------------------------|----------------|-----------|-----------|--------------------------------------|----------------|----------------|-----------|-----------|--------------------------------------|----------------|----------------|-----------|-----------|--------------------------------------|
| Job Level                                                                                  | 2024/2025                     |                |           |           |                                      | 2023/2024      |                |           |           |                                      | 2022/2023      |                |           |           |                                      |
|                                                                                            | Approved Posts                | Budgeted Posts | Employees | Vacancies | Vacancies (as a % of budgeted posts) | Approved Posts | Approved Posts | Employees | Vacancies | Vacancies (as a % of budgeted posts) | Approved Posts | Approved Posts | Employees | Vacancies | Vacancies (as a % of budgeted posts) |
|                                                                                            | No.                           | No.            | No.       | No.       | %                                    | No.            | No.            | No.       | No.       | %                                    | No.            | No.            | No.       | No.       | %                                    |
| 0 – 3                                                                                      | Information not yet available |                |           |           |                                      | 2              | 2              | 2         | 0         | 0.00%                                | 2              | 2              | 2         | 0         | 0.00%                                |
| 4 – 6                                                                                      |                               |                |           |           |                                      | 15             | 15             | 14        | 1         | 6.67%                                | 15             | 15             | 14        | 1         | 6.67%                                |
| 7 – 9                                                                                      |                               |                |           |           |                                      | 10             | 10             | 10        | 0         | 0.00%                                | 10             | 10             | 10        | 0         | 0.00%                                |
| 10 – 12                                                                                    |                               |                |           |           |                                      | 4              | 4              | 4         | 0         | 0.00%                                | 4              | 4              | 4         | 0         | 0.00%                                |
| 13 – 15                                                                                    |                               |                |           |           |                                      | 1              | 1              | 1         | 0         | 0.00%                                | 1              | 1              | 1         | 0         | 0.00%                                |
| 16 – 18                                                                                    |                               |                |           |           |                                      | 0              | 0              | 0         | 0         | 0.00%                                | 0              | 0              | 0         | 0         | 0.00%                                |
| 19 - 20                                                                                    |                               |                |           |           |                                      | 0              | 0              | 0         | 0         | 0.00%                                | 0              | 0              | 0         | 0         | 0.00%                                |
| <b>Total</b>                                                                               |                               |                |           |           |                                      | <b>32</b>      | <b>32</b>      | <b>31</b> | <b>1</b>  | <b>3.13%</b>                         | <b>32</b>      | <b>32</b>      | <b>31</b> | <b>1</b>  | <b>3.13%</b>                         |

A comprehensive Customer Services and Complaints system is in place at Swartland Municipality and the Municipality has maintained a high and a very consistent level of service to its urban water consumers. After hour emergency requests are being dealt with by the control room on a twenty-four-hour basis. All water and sanitation related complaints are logged through the system in order to ensure quick response to complaints.

A Client Services Charter is also in place, with the following water supply and sewage services standards.

#### Water Supply:

- Repair of network: Reaction within three (3) hours after incident has been reported.
- Installation of new household water connections: Within ten (10) working days after receipt of payment.

#### Provision of Sewage Services:

- Clearing obstruction: Reaction within three (3) hours after incident has been reported.
- Installation of new household sewer connections: Within ten (10) working days after payment.
- Draining of conservancy tanks: Within 24 hours after request has been received. Service vehicle available for pumping service on scheduled days.

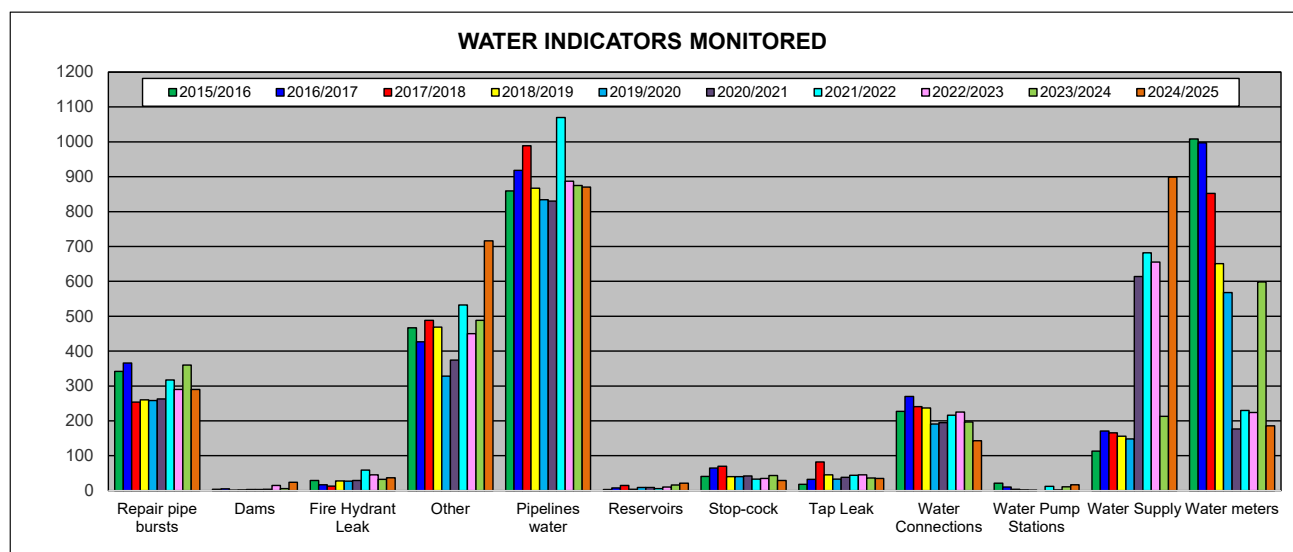


Figure C.9.2: Water indicators recorded for the various financial years.

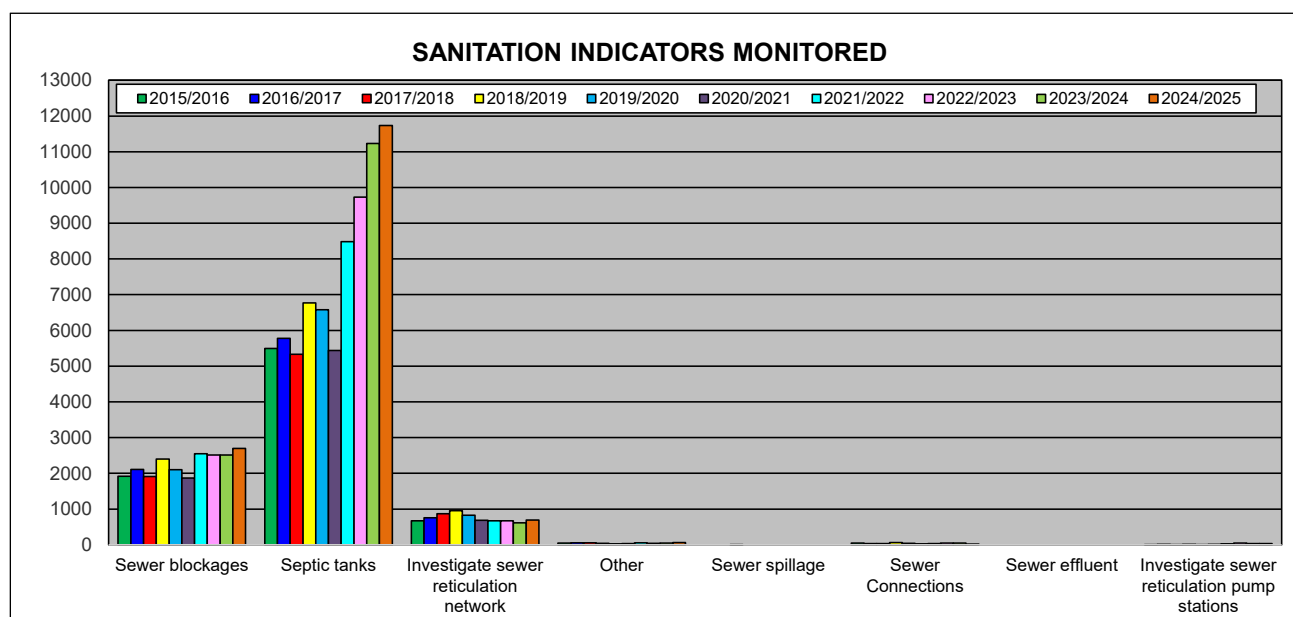


Figure C.9.3: Sanitation indicators recorded for the various financial years.

The table below gives an overview of the water customer services and maintenance work for the different areas for the last five financial years.

| Table C.9.5: Water indicators monitored by Swartland Municipality with regard to customer services and maintenance work |                                                             |            |            |            |             |            |              |              |           |                |                 |             |            |             |              |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------|------------|------------|-------------|------------|--------------|--------------|-----------|----------------|-----------------|-------------|------------|-------------|--------------|
| Service                                                                                                                 | Indicator                                                   | Abbotsdale | Chatsworth | Darling    | Kalbaskraal | Koringberg | Malmesbury   | Moorreesburg | Farms     | Ongegund (PPC) | Riebeek Kasteel | Riebeek Wes | Riverlands | Yzerfontein | Total        |
| Repair pipe bursts                                                                                                      | Repair of burst water pipelines                             | 10         | 28         | 20         | 11          | 2          | 117          | 29           | 0         | 6              | 27              | 14          | 14         | 12          | 290          |
| Dams                                                                                                                    | Inspect / Repair faults at dams                             | 0          | 1          | 0          | 0           | 0          | 2            | 20           | 0         | 0              | 0               | 1           | 0          | 0           | 24           |
| Fire Hydrant Leak                                                                                                       | Inspect / repair leaking hydrants                           | 0          | 3          | 5          | 0           | 0          | 19           | 8            | 0         | 0              | 1               | 1           | 0          | 0           | 37           |
| Other                                                                                                                   | Other water complaints (Not specified)                      | 41         | 31         | 107        | 23          | 9          | 392          | 45           | 4         | 0              | 29              | 8           | 16         | 11          | 716          |
| Pipelines water                                                                                                         | Inspect / repair of faulty water pipelines                  | 20         | 45         | 92         | 37          | 7          | 470          | 107          | 0         | 3              | 33              | 14          | 28         | 14          | 870          |
| Reservoirs                                                                                                              | Inspection of reservoirs and work carried out               | 0          | 0          | 1          | 3           | 0          | 12           | 2            | 0         | 0              | 2               | 0           | 0          | 1           | 21           |
| Stop-cock                                                                                                               | Inspect / Repair leaking stop-cocks                         | 1          | 0          | 13         | 0           | 0          | 3            | 10           | 0         | 0              | 1               | 1           | 0          | 0           | 29           |
| Tap Leak                                                                                                                | Inspect / Repair leaking taps                               | 0          | 0          | 1          | 0           | 1          | 28           | 2            | 0         | 0              | 2               | 0           | 0          | 1           | 35           |
| Water Connections                                                                                                       | New / Inspections and work carried out at water connections | 9          | 9          | 10         | 5           | 4          | 54           | 9            | 0         | 0              | 9               | 3           | 0          | 31          | 143          |
| Water Pump Stations                                                                                                     | Inspections and work carried out at water PS                | 1          | 0          | 0          | 10          | 0          | 1            | 1            | 0         | 0              | 0               | 0           | 4          | 0           | 17           |
| Water Supply                                                                                                            | Faulty water supply                                         | 58         | 95         | 125        | 38          | 11         | 395          | 68           | 1         | 3              | 48              | 11          | 40         | 6           | 899          |
| Water meters                                                                                                            | Inspect / Test / Repair / Install                           | 7          | 23         | 19         | 16          | 1          | 69           | 18           | 1         | 3              | 21              | 4           | 2          | 2           | 186          |
| <b>Total for 2024/2025</b>                                                                                              |                                                             | <b>147</b> | <b>235</b> | <b>393</b> | <b>143</b>  | <b>35</b>  | <b>1 562</b> | <b>319</b>   | <b>6</b>  | <b>15</b>      | <b>173</b>      | <b>57</b>   | <b>104</b> | <b>78</b>   | <b>3 267</b> |
| Repair pipe bursts                                                                                                      | Repair of burst water pipelines                             | 6          | 61         | 26         | 12          | 4          | 106          | 34           | 3         | 6              | 27              | 13          | 53         | 9           | 360          |
| Dams                                                                                                                    | Inspect / Repair faults at dams                             | 0          | 0          | 0          | 1           | 0          | 5            | 0            | 0         | 0              | 0               | 0           | 0          | 0           | 6            |
| Fire Hydrant Leak                                                                                                       | Inspect / repair leaking hydrants                           | 0          | 1          | 8          | 1           | 0          | 15           | 5            | 0         | 0              | 2               | 0           | 0          | 0           | 32           |
| Other                                                                                                                   | Other water complaints (Not specified)                      | 11         | 26         | 107        | 14          | 6          | 223          | 49           | 1         | 1              | 24              | 8           | 8          | 10          | 488          |
| Pipelines water                                                                                                         | Inspect / repair of faulty water pipelines                  | 15         | 93         | 77         | 33          | 14         | 388          | 94           | 2         | 2              | 36              | 15          | 82         | 24          | 875          |
| Reservoirs                                                                                                              | Inspection of reservoirs and work carried out               | 2          | 0          | 4          | 0           | 1          | 8            | 1            | 0         | 0              | 0               | 0           | 0          | 0           | 16           |
| Stop-cock                                                                                                               | Inspect / Repair leaking stop-cocks                         | 0          | 0          | 10         | 0           | 1          | 3            | 29           | 0         | 0              | 0               | 0           | 0          | 0           | 43           |
| Tap Leak                                                                                                                | Inspect / Repair leaking taps                               | 1          | 0          | 5          | 0           | 1          | 22           | 5            | 0         | 0              | 0               | 0           | 0          | 2           | 36           |
| Water Connections                                                                                                       | New / Inspections and work carried out at water connections | 8          | 11         | 13         | 10          | 1          | 71           | 8            | 0         | 1              | 13              | 5           | 1          | 55          | 197          |
| Water Pump Stations                                                                                                     | Inspections and work carried out at water PS                | 1          | 0          | 0          | 7           | 0          | 0            | 0            | 0         | 0              | 1               | 0           | 2          | 0           | 11           |
| Water Supply                                                                                                            | Faulty water supply                                         | 11         | 22         | 10         | 14          | 3          | 93           | 21           | 4         | 0              | 16              | 9           | 8          | 2           | 213          |
| Water meters                                                                                                            | Inspect / Test / Repair / Install                           | 17         | 67         | 86         | 20          | 4          | 270          | 66           | 2         | 0              | 20              | 13          | 25         | 8           | 598          |
| <b>Total for 2023/2024</b>                                                                                              |                                                             | <b>72</b>  | <b>281</b> | <b>346</b> | <b>112</b>  | <b>35</b>  | <b>1 204</b> | <b>312</b>   | <b>12</b> | <b>10</b>      | <b>139</b>      | <b>63</b>   | <b>179</b> | <b>110</b>  | <b>2 875</b> |

| Table C.9.5: Water indicators monitored by Swartland Municipality with regard to customer services and maintenance work |                                                             |            |            |            |             |            |              |              |           |                |                 |             |            |             |              |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------|------------|------------|-------------|------------|--------------|--------------|-----------|----------------|-----------------|-------------|------------|-------------|--------------|
| Service                                                                                                                 | Indicator                                                   | Abbotsdale | Chatsworth | Darling    | Kalbaskraal | Koringberg | Malmesbury   | Moorreesburg | Farms     | Ongegend (PPC) | Riebeek Kasteel | Riebeek Wes | Riverlands | Yzerfontein | Total        |
| Repair pipe bursts                                                                                                      | Repair of burst water pipelines                             | 5          | 13         | 18         | 6           | 1          | 133          | 28           | 1         | 4              | 21              | 17          | 42         | 1           | 290          |
| Dams                                                                                                                    | Inspect / Repair faults at dams                             | 2          | 0          | 0          | 0           | 0          | 10           | 1            | 0         | 0              | 2               | 0           | 0          | 0           | 15           |
| Fire Hydrant Leak                                                                                                       | Inspect / repair leaking hydrants                           | 0          | 1          | 11         | 0           | 0          | 21           | 7            | 0         | 0              | 0               | 1           | 3          | 1           | 45           |
| Other                                                                                                                   | Other water complaints (Not specified)                      | 10         | 9          | 155        | 10          | 2          | 165          | 36           | 1         | 0              | 17              | 13          | 4          | 28          | 450          |
| Pipelines water                                                                                                         | Inspect / repair of faulty water pipelines                  | 24         | 43         | 64         | 15          | 14         | 462          | 144          | 1         | 2              | 35              | 24          | 35         | 24          | 887          |
| Reservoirs                                                                                                              | Inspection of reservoirs and work carried out               | 0          | 0          | 2          | 1           | 1          | 4            | 0            | 0         | 1              | 1               | 0           | 0          | 0           | 10           |
| Stop-cock                                                                                                               | Inspect / Repair leaking stop-cocks                         | 0          | 0          | 3          | 0           | 0          | 0            | 32           | 0         | 0              | 0               | 0           | 0          | 0           | 35           |
| Tap Leak                                                                                                                | Inspect / Repair leaking taps                               | 1          | 1          | 5          | 0           | 1          | 30           | 7            | 0         | 0              | 0               | 0           | 0          | 0           | 45           |
| Water Connections                                                                                                       | New / Inspections and work carried out at water connections | 6          | 22         | 16         | 9           | 1          | 78           | 16           | 0         | 1              | 14              | 3           | 0          | 59          | 225          |
| Water Pump Stations                                                                                                     | Inspections and work carried out at water PS                | 0          | 0          | 0          | 2           | 0          | 0            | 0            | 0         | 0              | 0               | 0           | 0          | 0           | 2            |
| Water Supply                                                                                                            | Faulty water supply                                         | 14         | 28         | 135        | 16          | 11         | 240          | 106          | 1         | 2              | 7               | 10          | 29         | 56          | 655          |
| Water meters                                                                                                            | Inspect / Test / Repair / Install                           | 9          | 15         | 15         | 9           | 2          | 121          | 17           | 1         | 1              | 15              | 9           | 4          | 6           | 224          |
| <b>Total for 2022/2023</b>                                                                                              |                                                             | <b>71</b>  | <b>132</b> | <b>424</b> | <b>68</b>   | <b>33</b>  | <b>1 264</b> | <b>394</b>   | <b>5</b>  | <b>11</b>      | <b>112</b>      | <b>77</b>   | <b>117</b> | <b>175</b>  | <b>2 883</b> |
| Repair pipe bursts                                                                                                      | Repair of burst water pipelines                             | 3          | 19         | 20         | 7           | 1          | 157          | 19           | 1         | 6              | 33              | 20          | 24         | 7           | 317          |
| Dams                                                                                                                    | Inspect / Repair faults at dams                             | 0          | 0          | 0          | 1           | 0          | 3            | 0            | 0         | 0              | 0               | 0           | 0          | 0           | 4            |
| Fire Hydrant Leak                                                                                                       | Inspect / repair leaking hydrants                           | 0          | 3          | 5          | 0           | 0          | 30           | 17           | 0         | 0              | 2               | 0           | 2          | 0           | 59           |
| Other                                                                                                                   | Other water complaints (Not specified)                      | 14         | 39         | 86         | 15          | 7          | 267          | 66           | 5         | 0              | 7               | 7           | 12         | 7           | 532          |
| Pipelines water                                                                                                         | Inspect / repair of faulty water pipelines                  | 20         | 43         | 97         | 21          | 16         | 566          | 188          | 3         | 6              | 32              | 19          | 42         | 17          | 1 070        |
| Reservoirs                                                                                                              | Inspection of reservoirs and work carried out               | 0          | 0          | 0          | 1           | 0          | 5            | 0            | 0         | 0              | 0               | 0           | 0          | 0           | 6            |
| Stop-cock                                                                                                               | Inspect / Repair leaking stop-cocks                         | 0          | 0          | 1          | 0           | 3          | 3            | 26           | 0         | 0              | 0               | 0           | 0          | 0           | 33           |
| Tap Leak                                                                                                                | Inspect / Repair leaking taps                               | 1          | 0          | 4          | 3           | 0          | 27           | 7            | 0         | 0              | 0               | 0           | 0          | 2           | 44           |
| Water Connections                                                                                                       | New / Inspections and work carried out at water connections | 6          | 31         | 5          | 6           | 5          | 92           | 21           | 0         | 0              | 9               | 8           | 0          | 33          | 216          |
| Water Pump Stations                                                                                                     | Inspections and work carried out at water PS                | 0          | 1          | 0          | 5           | 0          | 4            | 0            | 0         | 0              | 0               | 0           | 2          | 0           | 12           |
| Water Supply                                                                                                            | Faulty water supply                                         | 23         | 47         | 125        | 19          | 12         | 279          | 112          | 1         | 1              | 16              | 4           | 24         | 19          | 682          |
| Water meters                                                                                                            | Inspect / Test / Repair / Install                           | 11         | 16         | 10         | 17          | 1          | 128          | 16           | 1         | 2              | 11              | 8           | 4          | 5           | 230          |
| <b>Total for 2021/2022</b>                                                                                              |                                                             | <b>78</b>  | <b>199</b> | <b>353</b> | <b>95</b>   | <b>45</b>  | <b>1 561</b> | <b>472</b>   | <b>11</b> | <b>15</b>      | <b>110</b>      | <b>66</b>   | <b>110</b> | <b>90</b>   | <b>3 205</b> |
| Repair pipe bursts                                                                                                      | Repair of burst water pipelines                             | 10         | 11         | 18         | 8           | 1          | 114          | 23           | 0         | 3              | 21              | 13          | 32         | 9           | 263          |
| Dams                                                                                                                    | Inspect / Repair faults at dams                             | 0          | 0          | 0          | 0           | 0          | 2            | 1            | 0         | 0              | 0               | 0           | 0          | 0           | 3            |
| Fire Hydrant Leak                                                                                                       | Inspect / repair leaking hydrants                           | 1          | 2          | 4          | 0           | 0          | 14           | 5            | 0         | 2              | 1               | 0           | 0          | 0           | 29           |

| Table C.9.5: Water indicators monitored by Swartland Municipality with regard to customer services and maintenance work |                                                             |            |            |         |             |            |            |               |       |                |                 |             |            |             |       |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------|------------|---------|-------------|------------|------------|---------------|-------|----------------|-----------------|-------------|------------|-------------|-------|
| Service                                                                                                                 | Indicator                                                   | Abbotsdale | Chatsworth | Darling | Kalbaskraal | Koringberg | Malmesbury | Moorrees-burg | Farms | Ongegund (PPC) | Riebeek Kasteel | Riebeek Wes | Riverlands | Yzerfontein | Total |
| Other                                                                                                                   | Other water complaints (Not specified)                      | 16         | 12         | 80      | 3           | 1          | 190        | 47            | 1     | 0              | 8               | 4           | 7          | 5           | 374   |
| Pipelines water                                                                                                         | Inspect / repair of faulty water pipelines                  | 25         | 30         | 89      | 23          | 7          | 477        | 109           | 0     | 2              | 16              | 6           | 35         | 11          | 830   |
| Reservoirs                                                                                                              | Inspection of reservoirs and work carried out               | 1          | 1          | 0       | 0           | 0          | 6          | 0             | 0     | 0              | 0               | 0           | 0          | 1           | 9     |
| Stop-cock                                                                                                               | Inspect / Repair leaking stop-cocks                         | 0          | 0          | 10      | 0           | 1          | 0          | 30            | 0     | 0              | 0               | 0           | 0          | 1           | 42    |
| Tap Leak                                                                                                                | Inspect / Repair leaking taps                               | 0          | 1          | 3       | 0           | 0          | 28         | 5             | 0     | 0              | 1               | 0           | 0          | 0           | 38    |
| Water Connections                                                                                                       | New / Inspections and work carried out at water connections | 9          | 35         | 10      | 11          | 0          | 87         | 10            | 0     | 0              | 8               | 3           | 2          | 20          | 195   |
| Water Pump Stations                                                                                                     | Inspections and work carried out at water PS                | 0          | 0          | 0       | 0           | 0          | 0          | 0             | 0     | 0              | 0               | 0           | 0          | 0           | 0     |
| Water Supply                                                                                                            | Faulty water supply                                         | 21         | 40         | 85      | 20          | 22         | 249        | 115           | 0     | 0              | 17              | 9           | 26         | 10          | 614   |
| Water meters                                                                                                            | Inspect / Test / Repair / Install                           | 5          | 15         | 16      | 9           | 2          | 100        | 14            | 1     | 0              | 7               | 5           | 1          | 2           | 177   |
| Total for 2020/2021                                                                                                     |                                                             | 88         | 147        | 315     | 74          | 34         | 1 267      | 359           | 2     | 7              | 79              | 40          | 103        | 59          | 2 574 |

The table below gives an overview of the sanitation customer services and maintenance work for the different areas for the last five financial years.

| C.9.6 Sanitation indicators monitored by Swartland Municipality with regard to customer services and maintenance work |                                                                  |            |            |         |             |            |            |               |       |                |                 |             |            |             |        |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|------------|---------|-------------|------------|------------|---------------|-------|----------------|-----------------|-------------|------------|-------------|--------|
| Service                                                                                                               | Indicator                                                        | Abbotsdale | Chatsworth | Darling | Kalbaskraal | Koringberg | Malmesbury | Moorrees-burg | Farms | Ongegund (PPC) | Riebeek Kasteel | Riebeek Wes | Riverlands | Yzerfontein | Total  |
| Sewer blockages                                                                                                       | Repair blockages on main sewer pipelines up to connection points | 121        | 29         | 469     | 60          | 18         | 1 041      | 628           | 2     | 17             | 160             | 85          | 62         | 8           | 2 700  |
| Septic tanks                                                                                                          | Empty septic tanks                                               | 60         | 720        | 189     | 602         | 677        | 150        | 517           | 1 261 | 0              | 319             | 1 103       | 19         | 6 119       | 11 736 |
| Investigate sewer reticulation network                                                                                | Investigate and clear blockages in network                       | 23         | 20         | 135     | 16          | 1          | 307        | 45            | 13    | 1              | 77              | 25          | 11         | 20          | 694    |
| Other                                                                                                                 | Other sewer complaints (Not specified)                           | 4          | 0          | 12      | 3           | 0          | 31         | 2             | 0     | 0              | 8               | 0           | 0          | 2           | 62     |
| Sewer spillage                                                                                                        | Investigate and clean sewer spillages                            | 0          | 0          | 0       | 0           | 0          | 0          | 0             | 0     | 0              | 0               | 0           | 0          | 0           | 0      |
| Sewer Connections                                                                                                     | Installation of sewer connections                                | 5          | 0          | 5       | 1           | 0          | 4          | 3             | 0     | 0              | 0               | 3           | 0          | 0           | 21     |
| Sewer effluent                                                                                                        | Investigate effluent distribution for irrigation purposes        | 0          | 0          | 0       | 0           | 0          | 0          | 0             | 0     | 0              | 0               | 0           | 0          | 0           | 0      |
| Investigate sewer                                                                                                     | Work carried out at sewer pump stations                          | 7          | 1          | 9       | 6           | 0          | 4          | 0             | 0     | 0              | 6               | 1           | 0          | 0           | 34     |

| C.9.6 Sanitation indicators monitored by Swartland Municipality with regard to customer services and maintenance work |                                                                  |            |            |            |             |            |              |               |              |                |                  |              |            |              |               |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|------------|------------|-------------|------------|--------------|---------------|--------------|----------------|------------------|--------------|------------|--------------|---------------|
| Service                                                                                                               | Indicator                                                        | Abbotsdale | Chatsworth | Darling    | Kalbaskraal | Koringberg | Malmesbury   | Moorrees-burg | Farms        | Ongegund (PPC) | Riebeeck Kasteel | Riebeeck Wes | Riverlands | Yzerfontein  | Total         |
| reticulation pump stations                                                                                            |                                                                  |            |            |            |             |            |              |               |              |                |                  |              |            |              |               |
| <b>Total for 2024/2025</b>                                                                                            |                                                                  | <b>220</b> | <b>770</b> | <b>819</b> | <b>688</b>  | <b>696</b> | <b>1 537</b> | <b>1 195</b>  | <b>1 276</b> | <b>18</b>      | <b>570</b>       | <b>1217</b>  | <b>92</b>  | <b>6 149</b> | <b>15 247</b> |
| Sewer blockages                                                                                                       | Repair blockages on main sewer pipelines up to connection points | 97         | 28         | 501        | 48          | 27         | 828          | 689           | 5            | 26             | 164              | 70           | 24         | 5            | <b>2 512</b>  |
| Septic tanks                                                                                                          | Empty septic tanks                                               | 44         | 800        | 191        | 661         | 685        | 103          | 556           | 1 256        | 0              | 309              | 1053         | 7          | 5 565        | <b>11 230</b> |
| Investigate sewer reticulation network                                                                                | Investigate and clear blockages in network                       | 21         | 5          | 117        | 9           | 4          | 261          | 45            | 13           | 7              | 66               | 33           | 15         | 20           | <b>616</b>    |
| Other                                                                                                                 | Other sewer complaints (Not specified)                           | 1          | 4          | 3          | 4           | 1          | 11           | 21            | 1            | 0              | 1                | 0            | 0          | 2            | <b>49</b>     |
| Sewer spillage                                                                                                        | Investigate and clean sewer spillages                            | 0          | 0          | 0          | 0           | 0          | 0            | 0             | 0            | 0              | 0                | 0            | 0          | 0            | <b>0</b>      |
| Sewer Connections                                                                                                     | Installation of sewer connections                                | 8          | 0          | 16         | 1           | 0          | 8            | 5             | 0            | 0              | 7                | 1            | 2          | 0            | <b>48</b>     |
| Sewer effluent                                                                                                        | Investigate effluent distribution for irrigation purposes        | 0          | 0          | 0          | 0           | 0          | 0            | 0             | 0            | 0              | 0                | 0            | 0          | 0            | <b>0</b>      |
| Investigate sewer reticulation pump stations                                                                          | Work carried out at sewer pump stations                          | 6          | 0          | 6          | 6           | 0          | 5            | 0             | 0            | 1              | 8                | 1            | 1          | 0            | <b>34</b>     |
| <b>Total for 2023/2024</b>                                                                                            |                                                                  | <b>177</b> | <b>837</b> | <b>834</b> | <b>729</b>  | <b>717</b> | <b>1 216</b> | <b>1 316</b>  | <b>1 275</b> | <b>34</b>      | <b>555</b>       | <b>1 158</b> | <b>49</b>  | <b>5 592</b> | <b>14 489</b> |
| Sewer blockages                                                                                                       | Repair blockages on main sewer pipelines up to connection points | 60         | 31         | 504        | 37          | 25         | 885          | 668           | 5            | 30             | 135              | 99           | 30         | 2            | <b>2 511</b>  |
| Septic tanks                                                                                                          | Empty septic tanks                                               | 24         | 679        | 213        | 612         | 570        | 82           | 526           | 1 063        | 0              | 278              | 870          | 38         | 4 775        | <b>9 730</b>  |
| Investigate sewer reticulation network                                                                                | Investigate and clear blockages in network                       | 33         | 14         | 95         | 11          | 0          | 316          | 55            | 15           | 8              | 55               | 27           | 16         | 27           | <b>672</b>    |
| Other                                                                                                                 | Other sewer complaints (Not specified)                           | 3          | 0          | 3          | 0           | 0          | 23           | 1             | 1            | 0              | 6                | 0            | 2          | 3            | <b>42</b>     |
| Sewer spillage                                                                                                        | Investigate and clean sewer spillages                            | 0          | 0          | 0          | 0           | 0          | 0            | 0             | 0            | 0              | 0                | 0            | 0          | 0            | <b>0</b>      |
| Sewer Connections                                                                                                     | Installation of sewer connections                                | 1          | 0          | 18         | 0           | 0          | 9            | 7             | 0            | 1              | 10               | 0            | 0          | 1            | <b>47</b>     |
| Sewer effluent                                                                                                        | Investigate effluent distribution for irrigation purposes        | 0          | 0          | 0          | 0           | 0          | 0            | 0             | 0            | 0              | 0                | 0            | 0          | 0            | <b>0</b>      |
| Investigate sewer reticulation pump stations                                                                          | Work carried out at sewer pump stations                          | 4          | 3          | 4          | 0           | 0          | 23           | 0             | 0            | 0              | 14               | 0            | 1          | 0            | <b>49</b>     |
| <b>Total for 2022/2023</b>                                                                                            |                                                                  | <b>125</b> | <b>727</b> | <b>837</b> | <b>660</b>  | <b>595</b> | <b>1 338</b> | <b>1 257</b>  | <b>1 084</b> | <b>39</b>      | <b>498</b>       | <b>996</b>   | <b>87</b>  | <b>4 808</b> | <b>13 051</b> |



**C.9.6 Sanitation indicators monitored by Swartland Municipality with regard to customer services and maintenance work**

| Service                                      | Indicator                                                        | Abbotsdale | Chatsworth | Darling    | Kalbaskraal | Koringberg | Malmesbury   | Moorreesburg | Farms        | Ongegend (PPC) | Riebeek Kasteel | Riebeek Wes | Riverlands | Yzerfontein  | Total         |
|----------------------------------------------|------------------------------------------------------------------|------------|------------|------------|-------------|------------|--------------|--------------|--------------|----------------|-----------------|-------------|------------|--------------|---------------|
| Sewer blockages                              | Repair blockages on main sewer pipelines up to connection points | 57         | 47         | 569        | 43          | 40         | 797          | 715          | 8            | 32             | 130             | 77          | 29         | 7            | 2 551         |
| Septic tanks                                 | Empty septic tanks                                               | 22         | 793        | 187        | 528         | 463        | 68           | 443          | 1 047        | 0              | 252             | 796         | 29         | 3 855        | 8 483         |
| Investigate sewer reticulation network       | Investigate and clear blockages in network                       | 34         | 11         | 131        | 16          | 6          | 270          | 81           | 11           | 4              | 46              | 33          | 5          | 21           | 669           |
| Other                                        | Other sewer complaints (Not specified)                           | 2          | 0          | 6          | 2           | 0          | 20           | 10           | 0            | 0              | 7               | 0           | 0          | 5            | 52            |
| Sewer spillage                               | Investigate and clean sewer spillages                            | 0          | 0          | 0          | 0           | 0          | 0            | 0            | 0            | 0              | 0               | 0           | 0          | 0            | 0             |
| Sewer Connections                            | Installation of sewer connections                                | 4          | 0          | 6          | 0           | 0          | 3            | 8            | 0            | 0              | 11              | 3           | 0          | 0            | 35            |
| Sewer effluent                               | Investigate effluent distribution for irrigation purposes        | 0          | 0          | 0          | 0           | 0          | 0            | 0            | 0            | 0              | 0               | 0           | 0          | 0            | 0             |
| Investigate sewer reticulation pump stations | Work carried out at sewer pump stations                          | 1          | 0          | 1          | 3           | 0          | 14           | 0            | 0            | 0              | 6               | 1           | 1          | 0            | 27            |
| <b>Total for 2021/2022</b>                   |                                                                  | <b>120</b> | <b>851</b> | <b>900</b> | <b>592</b>  | <b>509</b> | <b>1 172</b> | <b>1 257</b> | <b>1 066</b> | <b>36</b>      | <b>452</b>      | <b>910</b>  | <b>64</b>  | <b>3 888</b> | <b>11 817</b> |
| Sewer blockages                              | Repair blockages on main sewer pipelines up to connection points | 41         | 14         | 442        | 24          | 12         | 597          | 574          | 2            | 20             | 63              | 55          | 23         | 3            | 1 870         |
| Septic tanks                                 | Empty septic tanks                                               | 20         | 541        | 129        | 422         | 310        | 47           | 288          | 737          | 0              | 148             | 481         | 10         | 2 306        | 5 439         |
| Investigate sewer reticulation network       | Investigate and clear blockages in network                       | 25         | 6          | 129        | 15          | 1          | 280          | 110          | 17           | 8              | 51              | 19          | 9          | 14           | 684           |
| Other                                        | Other sewer complaints (Not specified)                           | 4          | 1          | 2          | 5           | 0          | 10           | 5            | 0            | 0              | 1               | 1           | 1          | 1            | 31            |
| Sewer spillage                               | Investigate and clean sewer spillages                            | 0          | 0          | 0          | 0           | 0          | 0            | 0            | 0            | 0              | 0               | 0           | 0          | 0            | 0             |
| Sewer Connections                            | Installation of sewer connections                                | 3          | 0          | 6          | 2           | 0          | 7            | 4            | 0            | 0              | 4               | 0           | 0          | 0            | 26            |
| Sewer effluent                               | Investigate effluent distribution for irrigation purposes        | 0          | 0          | 0          | 0           | 0          | 0            | 0            | 0            | 0              | 0               | 0           | 0          | 0            | 0             |
| Investigate sewer reticulation pump stations | Work carried out at sewer pump stations                          | 2          | 0          | 0          | 1           | 0          | 7            | 0            | 0            | 0              | 1               | 0           | 3          | 0            | 14            |
| <b>Total for 2020/2021</b>                   |                                                                  | <b>95</b>  | <b>562</b> | <b>708</b> | <b>469</b>  | <b>323</b> | <b>948</b>   | <b>981</b>   | <b>756</b>   | <b>28</b>      | <b>268</b>      | <b>556</b>  | <b>46</b>  | <b>2 324</b> | <b>8 064</b>  |

| C.9.6 Sanitation indicators monitored by Swartland Municipality with regard to customer services and maintenance work |                                                                  |            |            |            |             |            |              |               |            |                |                 |             |            |              |              |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------|------------|------------|-------------|------------|--------------|---------------|------------|----------------|-----------------|-------------|------------|--------------|--------------|
| Service                                                                                                               | Indicator                                                        | Abbotsdale | Chatsworth | Darling    | Kalbaskraal | Koringberg | Malmesbury   | Moorrees-burg | Farms      | Ongegend (PPC) | Riebeek Kasteel | Riebeek Wes | Riverlands | Yzerfontein  | Total        |
| Sewer blockages                                                                                                       | Repair blockages on main sewer pipelines up to connection points | 57         | 11         | 446        | 39          | 24         | 690          | 589           | 2          | 18             | 121             | 75          | 18         | 12           | 2102         |
| Septic tanks                                                                                                          | Empty septic tanks                                               | 13         | 483        | 250        | 411         | 392        | 56           | 308           | 794        | -              | 238             | 679         | 7          | 2 946        | 6 577        |
| Investigate sewer reticulation network                                                                                | Investigate and clear blockages in network                       | 32         | 15         | 136        | 22          | 1          | 375          | 105           | 12         | 9              | 53              | 23          | 16         | 31           | 830          |
| Other                                                                                                                 | Other sewer complaints (Not specified)                           | -          | -          | 5          | 1           | -          | 13           | 2             | 1          | 1              | 2               | -           | -          | 1            | 26           |
| Sewer spillage                                                                                                        | Investigate and clean sewer spillages                            | -          | -          | -          | -           | -          | -            | -             | -          | -              | -               | -           | -          | -            | -            |
| Sewer Connections                                                                                                     | Installation of sewer connections                                | 6          | -          | 8          | -           | -          | 11           | 5             | -          | -              | 10              | 2           | 1          | -            | 43           |
| Sewer effluent                                                                                                        | Investigate effluent distribution for irrigation purposes        | -          | -          | -          | -           | -          | -            | -             | -          | -              | -               | -           | -          | -            | -            |
| Investigate sewer reticulation pump stations                                                                          | Work carried out at sewer pump stations                          | -          | -          | -          | 4           | -          | 2            | -             | -          | -              | 1               | -           | -          | -            | 7            |
| <b>Total for 2019/2020</b>                                                                                            |                                                                  | <b>108</b> | <b>509</b> | <b>845</b> | <b>477</b>  | <b>417</b> | <b>1 147</b> | <b>1 009</b>  | <b>809</b> | <b>28</b>      | <b>425</b>      | <b>779</b>  | <b>42</b>  | <b>2 990</b> | <b>9 585</b> |

The table below gives an overview of the number of tanks pumped during the last six financial years for the various towns.

| Town             | 2024/2025     | 2023/2024     | 2022/2023     | 2021/2022    | 2020/2021    | 2019/2020    |
|------------------|---------------|---------------|---------------|--------------|--------------|--------------|
| Abbotsdale       | 58            | 39            | 24            | 22           | 24           | 13           |
| Chatsworth       | 715           | 803           | 669           | 829          | 614          | 484          |
| Darling          | 147           | 150           | 205           | 169          | 144          | 214          |
| Kalbaskraal      | 594           | 641           | 615           | 538          | 556          | 392          |
| Koringberg       | 657           | 653           | 548           | 461          | 374          | 373          |
| Malmesbury       | 73            | 65            | 66            | 43           | 51           | 40           |
| Moorreesburg     | 495           | 536           | 532           | 426          | 379          | 302          |
| Farms / Other    | 1 351         | 1 322         | 1 179         | 1 133        | 952          | 834          |
| Riebeeck Kasteel | 309           | 292           | 378           | 237          | 229          | 226          |
| Riebeeck Wes     | 1 096         | 1 047         | 915           | 790          | 703          | 672          |
| Riverlands       | 17            | 9             | 37            | 29           | 17           | 7            |
| Yzerfontein      | 5 873         | 5 353         | 4 661         | 3 786        | 3 186        | 2 736        |
| Department       | 275           | 271           | 252           | 259          | 177          | 289          |
| <b>Total</b>     | <b>11 660</b> | <b>11 181</b> | <b>10 081</b> | <b>8 722</b> | <b>7 406</b> | <b>6 582</b> |

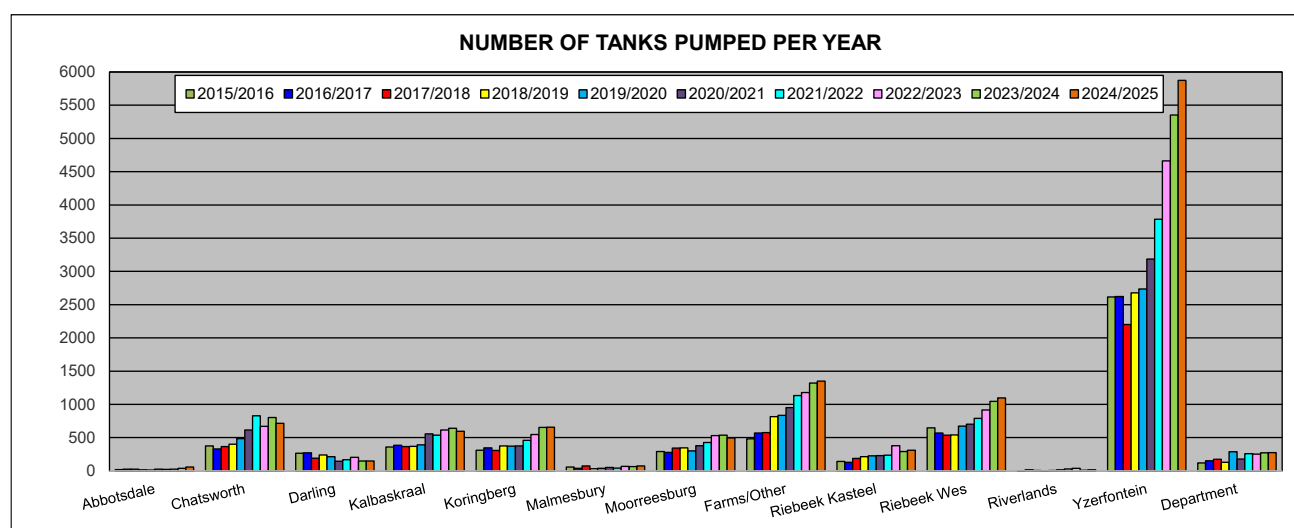


Figure C.9.4: Number of sewage tanks pumped per year for the different areas

Access to safe drinking water is essential to health and is a human right. Safe drinking water that complies with the SANS:241 Drinking Water specification does not pose a significant risk to health over a lifetime of consumption, including different sensitivities that may occur between life stages. Swartland Municipality is therefore committed to ensure that their water quality always complies with national safety standards.

Barriers implemented by Swartland Municipality against contamination and deteriorating water quality include the following:

- Service Delivery Agreement between the West Coast District Municipality and Swartland Municipality. A Monitoring Committee with the following powers and functions are in place:
  - To co-ordinate integrated development planning in respect of the services;
  - To monitor the performance of the District Municipality in respect of service levels;
  - To monitor the implementation of this agreement;
  - To provide a forum for the local municipalities to interact with the District Municipality;
  - To accept delivery, on behalf of the Local Municipalities, of reports which the District Municipality is required to produce in terms of this agreement;
  - To consider and make recommendations to the District Municipality on the District Municipality's high-level budget and key performance indicators and targets;
  - In consultation with the District Municipality, to handle, manage and make recommendations to the parties in respect of any matter related to the services which is not dealt with by this agreement;
  - To ensure that the expenses incurred by the District Municipality in respect of the services do not exceed the amount allocated therefore in the District Municipality's annual budget;
  - To formulate a written document that records the rules and procedures, which will be binding on itself, regulating the manner and legislative obligations, powers and functions to the Monitoring Committee.
- Protection at points of abstraction such as Paardenberg Dam and the boreholes (Abstraction Management).
- Protection and maintenance of the distribution systems. This includes ensuring an adequate disinfectant residual at all times, rapid response to pipe bursts and other leaks, regular cleaning of reservoirs, keeping all delivery points tidy and clean, etc.

Three other important barriers implemented by Swartland Municipality against poor quality drinking water that are a prerequisite to those listed above are as follows:

- A well informed Council and municipal managers that understand the extreme importance of and are committed to providing adequate resources for continuous professional operation and maintenance of the water supply system.
- Competent managers and supervisors in the technical department who are responsible for water supply services lead by example and are passionate about monitoring and safeguarding drinking water quality.
- Well informed community members and other consumers of water supply services that know how to protect the water from becoming contaminated once it has been delivered, that have respect for water as a precious resource and that adhere to safe hygiene and sanitation practices.

## D. APPROVAL AND PUBLICATION RECORD

This Annual WSDP Performance- and Water Services Audit Report is for the 2024/2025 Financial Year and is hereby approved for submission to the Minister of the Department of Water and Sanitation, the Minister for the Department of Cooperative Governance, the Western Cape Province and to SALGA, as required by the Water Services Act, 1997.

The Municipality will endeavour to publicise a summary of the report.

This report will be available for inspection at the offices of the municipality and is available on the Municipality's website. A Copy of the report is obtainable at a fee as determined by the Municipality.

### RECOMMENDED:

\_\_\_\_\_  
Signature  
**Name: E de Jager**  
**Title: Senior Manager: Solid Waste and Trade Services**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature  
**Name: L Zikmann**  
**Title: Director Civil Engineering Services**

\_\_\_\_\_  
Date

### APPROVED:

\_\_\_\_\_  
Signature  
**Name: J Scholtz**  
**Title: Municipal Manager**

\_\_\_\_\_  
Date

## REFERENCES

- SA Census Data (2011), Community Profiles and SA Census 2022 Data.
- DWS's Annual Water Services Development Plan Performance- and Water Services Audit Report Template, August 2014.
- Revised Compulsory National Water and Sanitation Services Standards in terms of Section 9 (1) of the Water Services Act, Act No.108 of 1997, 6 June 2025, Gazette No.52814.
- DWS's 2023 Blue Drop Report.
- DWS's 2022 Green Drop Report and 2023 Green Drop Progress Report.
- Swartland Municipality's Municipal Services Strategic Assessment (MuSSA) Report, 2024, DWS.
- DWS's All Towns Reconciliation Strategy Documents for each of the towns in Swartland Municipality's Management Area, March 2016.
- Swartland Municipality's Water Services Audit Report for 2023/2024, Final Document, iX engineers, 24 October 2024.
- Swartland Municipality's Operational and Maintenance Budgets and Tariffs.
- Asset Register for Water and Sanitation Infrastructure Assets, June 2025.
- SDBIP of Swartland Municipality for 2024/2025.
- 2024 Socio-Economic Profile for Swartland Municipality, Western Cape Government.
- Swartland Municipality: Resource Augmentation Study – Desktop Study, May 2021, iX engineers.
- Water Safety Plan for the Swartland Bulk Water Distribution System, June 2022, iX engineers.
- Water Safety Plan for the Withoogte Bulk Water Distribution System, June 2022, iX engineers.
- Water Safety Plan for the Internal Water Supply Systems, August 2022, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Malmesbury and Abbottsdale, Working Document, 21 February 2025, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Darling, Working Document, 21 February 2025, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Moorreesburg, Working Document, 21 February 2025, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Riebeeck Valley (Riebeeck Kasteel, Riebeeck West and Ongegund), Working Document, 21 February 2025, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Riverlands and Chatsworth, Working Document, 21 February 2025, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Koringberg, Working Document, 21 February 2025, iX engineers.
- Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) for Kalbaskraal, Working Document, 21 February 2025, iX engineers.

## **ATTENDANCE REGISTER (DISCUSSION OF DRAFT DOCUMENT)**



## **ANNEXURE A**

**Monthly number of consumers per category and per town for the last fourteen financial years**

**Monthly volume of billed metered consumption per category and per town for the last fourteen financial years**

**IWA Water balance models for the various distribution systems**

**Rainfall and WWTWs flows and capacities**

**WTWs capacities**

[illegible]

|                  |             |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Koringberg       | Residential | 427  | 427  | 427  | 307  | 307  | 307  | 427  | 427  | 307  | 307  | 427  | 0    | 372  | 309  | 309  | 429  | 309  | 309  | 309  | 309  | 309  | 309  | 429  | 309  | 329  | 310  | 310  | 310  | 310  | 311  | 308  | 309  |      | 311  | 314  | 314  | 308  | 310  | 314  | 314  | 314  | 314  | 315  | 315  | 316  | 316  | 316  | 317  | 317  | 317  | 315  |      |
|                  | Business    | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 0    | 10   | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    | 9    |      |      |      |
|                  | Others      | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 0    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    |      |      |
| Darling          | Residential | 2433 | 2433 | 2432 | 2433 | 2433 | 2434 | 2433 | 2435 | 2435 | 2435 | 0    | 2434 | 2441 | 2441 | 2441 | 2441 | 2442 | 2442 | 2443 | 2443 | 2443 | 2443 | 2443 | 2443 | 2442 | 2443 | 2443 | 2442 | 2442 | 2443 | 2443 | 2443 | 2426 | 2443 | 2443 | 2443 | 2442 | 2437 | 2441 | 2443 | 2444 | 2444 | 2445 | 2445 | 2445 | 2445 | 2448 | 2448 | 2448 | 2447 | 2446 | 2446 |
|                  | Business    | 99   | 99   | 99   | 99   | 100  | 99   | 100  | 101  | 101  | 101  | 0    | 100  | 103  | 104  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 105  | 104  | 104  | 104  | 104  | 105  | 105  | 105  | 105  | 105  | 106  | 106  | 106  | 106  | 106  | 106  | 106  | 107  | 112  | 112  | 112  | 112  |      |      |
|                  | Others      | 55   | 55   | 55   | 56   | 56   | 55   | 55   | 55   | 55   | 55   | 0    | 55   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 53   | 53   | 53   | 53   | 53   | 53   | 53   | 53   | 53   | 53   | 50   | 53   | 44   | 44   | 43   | 43   | 43   | 43   | 43   | 43   | 43   | 43   | 43   | 43   |      |      |
| Riebeeck Wes     | Residential | 682  | 684  | 683  | 685  | 686  | 686  | 684  | 684  | 684  | 684  | 0    | 684  | 685  | 687  | 688  | 689  | 690  | 690  | 690  | 690  | 691  | 691  | 691  | 691  | 691  | 692  | 691  | 692  | 692  | 692  | 693  | 695  | 695  | 695  | 695  | 695  | 692  | 688  | 692  | 692  | 694  | 694  | 693  | 693  | 693  | 694  | 694  | 696  | 697  | 697  | 694  |      |
|                  | Business    | 42   | 42   | 42   | 42   | 42   | 44   | 44   | 44   | 44   | 44   | 0    | 43   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 45   | 47   | 47   | 45   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   | 52   |      |      |
|                  | Others      | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 0    | 30   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 28   | 33   | 30   | 29   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 30   | 30   | 30   | 31   |      |
| Riebeeck Kasteel | Residential | 1051 | 1052 | 1051 | 1054 | 1056 | 1056 | 1058 | 1059 | 1060 | 1059 | 1061 | 0    | 1056 | 1062 | 1064 | 1069 | 1069 | 1069 | 1069 | 1070 | 1072 | 1072 | 1071 | 1071 | 1072 | 1069 | 1072 | 1072 | 1073 | 1074 | 1074 | 1072 | 1077 | 1078 | 1078 | 1078 | 1078 | 1071 | 1075 | 1078 | 1077 | 1077 | 1076 | 1076 | 1077 | 1077 | 1080 | 1082 | 1086 | 1087 | 1087 | 1080 |
|                  | Business    | 31   | 31   | 32   | 33   | 33   | 33   | 33   | 33   | 33   | 34   | 34   | 0    | 33   | 32   | 31   | 31   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 32   | 31   | 31   | 31   | 31   | 31   | 31   | 32   |      |      |
|                  | Others      | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 0    | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   | 22   |      |      |      |
| Yzerfontein      | Residential | 1129 | 1134 | 1135 | 1138 | 1139 | 1139 | 1140 | 1144 | 1144 | 1144 | 1149 | 0    | 1140 | 1158 | 1158 | 1159 | 1162 | 1162 | 1162 | 1165 | 1169 | 1171 | 1173 | 1178 | 1180 | 1166 | 1181 | 1183 | 1190 | 1197 | 1196 | 1196 | 1202 | 1203 | 1205 | 1209 | 1210 | 1179 | 1196 | 1217 | 1220 | 1224 | 1227 | 1231 | 1235 | 1237 | 1238 | 1241 | 1248 | 1251 | 1252 | 1235 |
|                  | Business    | 22   | 22   | 20   | 21   | 22   | 21   | 21   | 21   | 21   | 21   | 21   | 0    | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 20   | 20   | 20   | 20   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 21   | 22   | 22   | 22   | 22   | 22   | 22   | 23   | 23   | 22   |      |      |      |      |
|                  | Others      | 25   | 25   | 25   | 24   | 24   | 25   | 24   | 24   | 24   | 24   | 24   | 0    | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 24   | 25   | 25   | 145  | 26   | 25   | 25   | 25   | 25   | 25   | 25   | 25   | 26   | 27   | 27   | 29   | 26   | 26   | 26   | 26   |      |      |
| Moorreesburg     | Residential | 2774 | 2776 | 2776 | 2776 | 2777 | 2779 | 2779 | 2779 | 2779 | 2779 | 2778 | 0    | 2777 | 2777 | 2773 | 2774 | 2776 | 2776 | 2776 | 2776 | 2776 | 2776 | 2776 | 2778 | 2779 | 2776 | 2781 | 2781 | 2781 | 2781 | 2783 | 2774 | 2782 | 2787 | 2787 | 2787 | 2787 | 2784 | 2775 | 2782 | 2784 | 2784 | 2784 | 2785 | 2786 | 2786 | 2786 | 2787 | 2789 | 2789 | 2789 | 2786 |
|                  | Business    | 188  | 188  | 186  | 186  | 187  | 187  | 187  | 187  | 187  | 186  | 0    | 187  | 187  | 187  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 190  | 191  | 191  | 191  | 191  | 191  | 191  | 191  | 191  | 191  | 191  | 192  | 191  | 192  | 188  | 191  | 190  | 190  | 179  | 189  | 189  | 189  | 188  | 188  | 188  | 189  | 189  | 188  |
|                  | Industrial  | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 0    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |      |      |
| PPC              | Residential | 80   | 80   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 0    | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 79   | 80   | 79   | 79   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   | 80   |      |      |
|                  | Business    | 2    | 2    | 2    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 0    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    |      |      |
|                  | Others      | 14   | 14   | 14   | 14   | 14   | 14   | 14   | 14   | 14   | 14   | 0    | 14   | 14   | 14   | 14   | 14   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   |      |      |
| Malmesbury       | Residential | 8510 | 8578 | 8585 | 8590 | 8594 | 8603 | 8612 | 8611 | 8613 | 8622 | 0    | 8593 | 8632 | 8636 | 8634 | 8634 | 8634 | 8634 | 8639 | 8642 | 8644 | 8651 | 8656 | 8660 | 8641 | 8661 | 8662 | 8669 | 8670 | 8320 | 8687 | 8685 | 8350 | 8711 | 8721 | 8729 | 8643 | 8626 | 8773 | 8780 | 8796 | 8890 | 9003 | 9102 | 9143 | 9165 | 9168 | 9193 | 9213 | 9226 | 9038 |      |
|                  | Business    | 370  | 368  | 373  | 377  | 376  | 376  | 377  | 379  | 379  | 379  | 380  | 0    | 376  | 377  | 376  | 381  | 385  | 390  | 390  | 390  | 393  | 394  | 396  | 395  | 394  | 388  | 395  | 396  | 396  | 398  | 400  | 399  | 580  | 399  | 399  | 399  | 395  | 413  | 396  | 396  | 396  | 396  | 396  | 396  | 396  | 397  | 397  | 398  | 398  | 397  | 393  |      |
|                  | Others      | 202  | 201  | 203  | 202  | 203  | 203  | 202  | 202  | 202  | 204  | 204  | 0    | 203  | 286  | 386  | 386  | 386  | 386  | 386  | 388  | 406  | 408  | 402  | 400  | 398  | 393  | 398  | 398  | 398  | 398  | 433  | 433  | 432  | 429  | 430  | 431  | 428  | 1538 | 512  | 393  | 392  | 388  | 388  | 392  | 396  | 392  | 395  | 395  | 394  | 398  | 398  | 393  |
| Farms            | 27          | 27   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 0    | 26   | 25   | 25   | 25   | 25   | 26   | 26   | 26   | 26   | 26   | 26   | 26   | 27   | 26   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 27   | 26   | 26   | 26   | 27   | 27   | 28   | 28   | 29   | 30   | 30   | 29   |      |      |      |











| 2023/2024 |      |      |      |      |      |      |      |      |      |      |      |       | 2024/2025 |      |      |      |      |      |      |      |      |      |      |      |       |
|-----------|------|------|------|------|------|------|------|------|------|------|------|-------|-----------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Jul       | Aug  | Sept | Oct  | Nov  | Dec  | Jan  | Febr | Mar  | Apr  | May  | Jun  | Total | Jul       | Aug  | Sept | Oct  | Nov  | Dec  | Jan  | Febr | Mar  | Apr  | May  | Jun  | Total |
| 1         | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1         | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     |
| 11        | 11   | 12   | 12   | 12   | 12   | 2    | 2    | 12   | 12   | 12   | 12   | 11    | 12        | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12    |
| 1138      | 1138 | 1138 | 1138 | 1139 | 1139 | 1139 | 1139 | 1141 | 1141 | 1141 | 1140 | 1139  | 1142      | 1144 | 1144 | 1144 | 1146 | 1146 | 1148 | 1150 | 1150 | 1150 | 1151 | 1151 | 1147  |
| 3         | 3    | 3    | 3    | -3   | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3     | 3         | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 3    | 2    | 2    | 2    | 3     |
| 18        | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 18    | 18        | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 19    |
| 1032      | 1034 | 1035 | 1035 | 1036 | 1036 | 1038 | 1037 | 1038 | 1038 | 1038 | 1037 | 1036  | 1049      | 1049 | 1048 | 1048 | 1051 | 1053 | 1053 | 1053 | 1053 | 1055 | 1053 | 1053 | 1052  |
| 114       | 114  | 114  | 114  | 115  | 115  | 115  | 115  | 115  | 115  | 115  | 116  | 115   | 127       | 127  | 127  | 128  | 128  | 128  | 128  | 129  | 129  | 130  | 130  | 130  | 128   |
| 45        | 45   | 45   | 45   | 45   | 45   | 39   | 44   | 44   | 44   | 44   | 44   | 44    | 39        | 40   | 40   | 40   | 40   | 40   | 40   | 40   | 40   | 40   | 40   | 37   | 40    |
| 2546      | 2546 | 2546 | 2547 | 2547 | 2547 | 2549 | 2549 | 2550 | 2551 | 2551 | 2552 | 2548  | 2549      | 2549 | 2551 | 2552 | 2553 | 2556 | 2555 | 2555 | 2555 | 2556 | 2559 | 2557 | 2554  |
|           |      |      |      |      |      |      |      |      |      |      |      |       |           |      |      |      |      |      |      |      |      |      |      |      |       |
| 4         | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4     | 4         | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4     |
| 18        | 18   | 18   | 18   | 18   | 18   | 18   | 18   | 17   | -3   | 17   | 17   | 17    | 16        | 17   | 17   | 17   | 17   | 17   | 17   | 17   | 17   | 17   | 17   | 18   | 17    |
| 618       | 620  | 621  | 619  | 620  | 620  | 622  | 625  | 626  | 626  | 626  | 626  | 622   | 626       | 636  | 636  | 636  | 636  | 637  | 637  | 637  | 637  | 638  | 640  | 640  | 636   |
| 11        | 11   | 11   | 11   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10    | 10        | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10    |
| 8         | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 7     | 8         | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8    | 8     |
| 349       | 350  | 350  | 350  | 352  | 352  | 353  | 353  | 354  | 354  | 354  | 201  | 339   | 354       | 354  | 354  | 354  | 355  | 357  | 357  | 357  | 358  | 359  | 360  | 356  | 356   |
| 382       | 386  | 386  | 388  | 388  | 391  | 392  | 392  | 395  | 396  | 396  | 397  | 391   | 400       | 399  | 399  | 398  | 398  | 398  | 398  | 401  | 401  | 401  | 400  | 399  | 399   |
| 29        | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29    | 29        | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29   | 29    |
| 326       | 326  | 327  | 328  | 328  | 328  | 327  | 329  | 329  | 329  | 329  | 329  | 328   | 329       | 334  | 329  | 329  | 329  | 329  | 329  | 329  | 328  | 328  | 328  | 328  | 329   |
| 4768      | 4772 | 4777 | 4775 | 4781 | 4782 | 4782 | 4792 | 4795 | 4801 | 4801 | 4814 | 4787  | 4819      | 4826 | 4827 | 4833 | 4842 | 4842 | 4844 | 4846 | 4882 | 4890 | 4896 | 4900 | 4854  |
| 190       | 190  | 190  | 190  | 190  | 189  | 189  | 189  | 189  | 189  | 189  | 190  | 189   | 164       | 164  | 164  | 164  | 164  | 164  | 164  | 164  | 164  | 164  | 164  | 164  | 164   |
| 6         | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6     | 6         | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6    | 6     |
| 5         | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5     | 31        | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31    |
| 53        | 53   | 53   | 53   | 53   | 53   | 53   | 53   | 52   | 52   | 53   | 53   | 53    | 53        | 52   | 52   | 53   | 52   | 52   | 52   | 53   | 53   | 53   | 52   | 51   | 52    |
| 2925      | 2930 | 2929 | 2930 | 2933 | 2934 | 2934 | 2935 | 2937 | 2938 | 2938 | 2937 | 2933  | 2939      | 2939 | 2939 | 2940 | 2941 | 2941 | 2942 | 2944 | 2947 | 2947 | 2949 | 2950 | 2943  |
| 2         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2     | 2         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2     |
| 19        | 19   | 19   | 19   | 19   | 19   | 19   | 19   | 12   | 12   | 12   | 12   | 12    | 16        | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12    |
| 88        | 88   | 89   | 89   | 89   | 89   | 89   | 90   | 90   | 90   | 90   | 90   | 89    | 90        | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90   | 90    |
| 38        | 38   | 38   | 38   | 38   | 38   | 38   | 38   | 40   | 39   | 39   | 39   | 38    | 39        | 39   | 39   | 39   | 39   | 39   | 39   | 39   | 39   | 39   | 40   | 39   | 39    |
| 1         | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1         | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     |
| 27        | 27   | 27   | 27   | 27   | 18   | 28   | 28   | 28   | 28   | 28   | 28   | 27    | 29        | 29   | 29   | 29   | 29   | 29   | 30   | 30   | 30   | 30   | 30   | 30   | 30    |
| 1590      | 1594 | 1594 | 1598 | 1598 | 1598 | 1598 | 1599 | 1600 | 1601 | 1601 | 1603 | 1598  | 1604      | 1605 | 1609 | 1609 | 1609 | 1609 | 1610 | 1612 | 1612 | 1613 | 1614 | 1613 | 1610  |
| 49        | 49   | 48   | 48   | 48   | 48   | 48   | 49   | 51   | 52   | 52   | 52   | 50    | 51        | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 51   | 52   | 52   | 52   | 51    |
| 33        | 33   | 32   | 32   | 33   | 33   | 33   | 33   | 33   | 33   | 33   | 32   | 31    | 33        | 33   | 33   | 33   | 33   | 33   | 33   | 33   | 33   | 33   | 33   | 33   | 33    |
| 976       | 977  | 977  | 978  | 978  | 978  | 978  | 977  | 977  | 977  | 977  | 978  | 977   | 978       | 978  | 978  | 979  | 979  | 979  | 979  | 979  | 979  | 980  | 980  | 980  | 979   |
| 1         | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     | 1         | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1    | 1     |
| 10        | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10    | 10        | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10    |
| 330       | 330  | 330  | 330  | 330  | 330  | 330  | 329  | 329  | 329  | 329  | 329  | 330   | 329       | 329  | 329  | 329  | 329  | 329  | 329  | 329  | 329  | 329  | 329  | 329  | 329   |
| 27        | 27   | 27   | 27   | 28   | 28   | 28   | 28   | 28   | 31   | 31   | 30   | 28    | 29        | 29   | 29   | 29   | 29   | 28   | 28   | 27   | 27   | 27   | 27   | 27   | 28    |
| 66        | 67   | 67   | 67   | 66   | 67   | 66   | 67   | 67   | 68   | 68   | 67   | 67    | 67        | 67   | 66   | 65   | 66   | 66   | 66   | 66   | 66   | 66   | 66   | 66   | 66    |
| 3709      | 3708 | 3710 | 3711 | 3712 | 3712 | 3714 | 3714 | 3700 | 3711 | 3711 | 3714 | 3710  | 3712      | 3713 | 3714 | 3714 | 3713 | 3712 | 3713 | 3714 | 3714 | 3714 | 3714 | 3714 | 3713  |
| 32        | 32   | 32   | 32   | 32   | 33   | 33   | 32   | 32   | 32   | 32   | 34   | 32    | 34        | 34   | 34   | 34   | 34   | 34   | 34   | 35   | 35   | 35   | 35   | 35   | 34    |
| 45        | 45   | 45   | 46   | 4    | 46   | 46   | 46   | 46   | 46   | 46   | 46   | 42    | 46        | 46   | 46   | 46   | 46   | 46   | 47   | 47   | 47   | 48   | 49   | 49   | 47    |
| 1738      | 1738 | 1754 | 1763 | 1764 | 1764 | 1769 | 1772 | 1774 | 1777 | 1777 | 1791 | 1765  | 1795      | 1800 | 1801 | 1805 | 1808 | 1809 | 1808 | 1814 | 1818 | 1820 | 1826 | 1826 | 1811  |

|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 349   | 350   | 350   | 350   | 352   | 352   | 353   | 353   | 354   | 354   | 354   | 201   | 339   | 354   | 354   | 354   | 354   | 354   | 355   | 357   | 357   | 358   | 359   | 360   | 356   |
| 11    | 11    | 11    | 11    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    | 10    |
| 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 7     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     | 8     |
| 2546  | 2546  | 2546  | 2547  | 2547  | 2547  | 2549  | 2549  | 2550  | 2551  | 2551  | 2552  | 2548  | 2549  | 2549  | 2551  | 2552  | 2553  | 2556  | 2555  | 2555  | 2556  | 2559  | 2557  | 2554  |
| 114   | 114   | 114   | 114   | 115   | 115   | 115   | 115   | 115   | 115   | 115   | 116   | 115   | 127   | 127   | 127   | 128   | 128   | 128   | 128   | 129   | 129   | 130   | 130   | 128   |
| 45    | 45    | 45    | 45    | 45    | 45    | 39    | 44    | 44    | 44    | 44    | 44    | 44    | 39    | 40    | 40    | 40    | 40    | 40    | 40    | 40    | 40    | 40    | 37    | 40    |
| 976   | 977   | 977   | 978   | 978   | 978   | 978   | 977   | 977   | 977   | 977   | 978   | 977   | 978   | 978   | 979   | 979   | 979   | 979   | 979   | 979   | 980   | 980   | 980   | 979   |
| 49    | 49    | 48    | 48    | 48    | 48    | 48    | 49    | 51    | 52    | 52    | 52    | 50    | 51    | 51    | 51    | 51    | 51    | 51    | 51    | 51    | 52    | 52    | 52    | 51    |
| 33    | 33    | 32    | 32    | 33    | 33    | 33    | 33    | 33    | 33    | 33    | 32    | 31    | 33    | 33    | 33    | 33    | 33    | 33    | 33    | 33    | 33    | 33    | 33    | 33    |
| 1590  | 1594  | 1594  | 1598  | 1598  | 1598  | 1598  | 1599  | 1600  | 1601  | 1601  | 1603  | 1598  | 1604  | 1605  | 1609  | 1609  | 1609  | 1609  | 1610  | 1612  | 1612  | 1613  | 1614  | 1613  |
| 38    | 38    | 38    | 38    | 38    | 38    | 38    | 38    | 40    | 39    | 39    | 39    | 38    | 39    | 39    | 39    | 39    | 39    | 39    | 39    | 39    | 39    | 40    | 39    | 39    |
| 27    | 27    | 27    | 27    | 18    | 28    | 28    | 28    | 28    | 28    | 28    | 28    | 27    | 29    | 29    | 29    | 29    | 29    | 29    | 30    | 30    | 30    | 30    | 30    | 30    |
| 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     | 1     |
| 1738  | 1738  | 1754  | 1763  | 1764  | 1764  | 1769  | 1772  | 1774  | 1777  | 1777  | 1791  | 1765  | 1795  | 1800  | 1801  | 1805  | 1808  | 1809  | 1808  | 1814  | 1818  | 1820  | 1826  | 1826  |
| 32    | 32    | 32    | 32    | 32    | 33    | 33    | 32    | 32    | 32    | 32    | 34    | 32    | 34    | 34    | 34    | 34    | 34    | 34    | 35    | 35    | 35    | 35    | 35    | 34    |
| 45    | 45    | 45    | 46    | 4     | 46    | 46    | 46    | 46    | 46    | 46    | 46    | 42    | 46    | 46    | 46    | 46    | 46    | 46    | 47    | 47    | 47    | 48    | 49    | 47    |
| 2925  | 2930  | 2929  | 2930  | 2933  | 2934  | 2934  | 2935  | 2937  | 2938  | 2938  | 2937  | 2933  | 2939  | 2939  | 2939  | 2940  | 2941  | 2941  | 2942  | 2944  | 2947  | 2947  | 2949  | 2950  |
| 190   | 190   | 190   | 190   | 189   | 189   | 189   | 189   | 189   | 189   | 189   | 190   | 189   | 164   | 164   | 164   | 164   | 164   | 164   | 164   | 164   | 164   | 164   | 164   | 164   |
| 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 31    | 31    | 31    | 31    | 31    | 31    | 31    | 31    | 31    | 31    | 31    | 31    |
| 53    | 53    | 53    | 53    | 53    | 53    | 53    | 53    | 52    | 52    | 53    | 53    | 53    | 53    | 52    | 52    | 53    | 53    | 52    | 52    | 53    | 53    | 52    | 51    | 52    |
| 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     | 6     |
| 88    | 88    | 89    | 89    | 89    | 89    | 89    | 89    | 90    | 90    | 90    | 90    | 89    | 90    | 90    | 90    | 90    | 90    | 90    | 90    | 90    | 90    | 90    | 90    | 90    |
| 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     | 2     |
| 19    | 19    | 19    | 19    | 19    | 19    | 19    | 12    | 12    | 12    | 12    | 12    | 16    | 12    | 12    | 12    | 12    | 12    | 12    | 12    | 12    | 12    | 12    | 12    | 12    |
| 11595 | 11602 | 11611 | 11608 | 11618 | 11619 | 11625 | 11634 | 11629 | 11646 | 11646 | 11660 | 11624 | 11677 | 11697 | 11697 | 11704 | 11718 | 11720 | 11723 | 11728 | 11765 | 11776 | 11783 | 11787 |
| 417   | 421   | 421   | 423   | 418   | 427   | 428   | 428   | 431   | 435   | 435   | 435   | 427   | 437   | 436   | 436   | 435   | 435   | 434   | 434   | 437   | 436   | 435   | 434   | 433   |
| 449   | 450   | 452   | 453   | 452   | 453   | 441   | 453   | 433   | 454   | 454   | 453   | 450   | 454   | 459   | 454   | 453   | 452   | 453   | 453   | 452   | 452   | 452   | 453   | 453   |
| 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    |



VOLUME OF WATER SOLD PER CONSUMER TYPE FOR THE VARIOUS FINANCIAL YEARS

| 2011/2012        |             |       |        |           |         |          |          |         |          |        |       |       |       |        | 2012/2013 |        |           |         |          |          |         |          |       |       |       |        | 2013/2014 |       |        |           |         |          |          |         |          |        |       |       |       |  |  |
|------------------|-------------|-------|--------|-----------|---------|----------|----------|---------|----------|--------|-------|-------|-------|--------|-----------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|-------|--------|-----------|-------|--------|-----------|---------|----------|----------|---------|----------|--------|-------|-------|-------|--|--|
| Town             | UseCategory | July  | August | September | October | November | December | January | February | March  | April | May   | June  | Total  | July      | August | September | October | November | December | January | February | March | April | May   | June   | Total     | July  | August | September | October | November | December | January | February | March  | April | May   | June  |  |  |
| Abbotsdale       | Business    | 29    | 19     | 15        | 0       | 36       | 19       | 2       | 5        | 7      | 5     | 15    | 24    | 176    | 22        | 43     | 37        | 33      | 25       | 27       | 52      | 37       | 44    | 159   | 252   | 335    | 1066      | 28    | 109    | 175       | 192     | 219      | 187      | 74      | 226      | 334    | 105   | 96    | 119   |  |  |
|                  | Farms       | 0     | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0      | 0     | 0     | 0     | 0      | 0         | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0     | 0     | 0     | 0      | 0         | 0     | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0      | 16    | 17    |       |  |  |
|                  | Other       | 229   | 144    | 237       | 194     | 149      | 121      | 131     | 180      | 132    | 120   | 163   | 158   | 1958   | 122       | 76     | 94        | 105     | 96       | 136      | 57      | 130      | 145   | 110   | 419   | 190    | 1680      | 231   | 227    | 215       | 283     | 182      | 134      | 273     | 343      | 143    | 414   | 235   | 261   |  |  |
|                  | Residential | 5404  | 6286   | 5603      | 5388    | 6950     | 6938     | 7643    | 9451     | 8484   | 8329  | 5907  | 5775  | 82158  | 5290      | 5553   | 6227      | 6707    | 6696     | 9219     | 9705    | 8915     | 8354  | 7383  | 6527  | 6563   | 87139     | 7229  | 7146   | 6940      | 7337    | 8419     | 9452     | 11635   | 10413    | 9280   | 8770  | 9375  | 7361  |  |  |
| Chatsworth       | Business    | 50    | 35     | 0         | 0       | 0        | 0        | 0       | 0        | 0      | 0     | 0     | 0     | 85     | 0         | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0     | 0     | 0     | 0      | 0         | 0     | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0      | 0     | 0     | 9     |  |  |
|                  | Other       | 390   | 671    | 815       | 615     | 747      | 701      | 524     | 614      | 1936   | 1149  | 641   | 600   | 9403   | 496       | 549    | 763       | 882     | 828      | 1185     | 1084    | 1110     | 1547  | 1090  | 868   | 773    | 11175     | 475   | 551    | 1517      | 587     | 677      | 2115     | 696     | 895      | 1483   | 1394  | 815   | 1025  |  |  |
|                  | Residential | 3217  | 3801   | 3671      | 3976    | 5122     | 6114     | 8026    | 7779     | 7616   | 7444  | 4937  | 4271  | 65974  | 3877      | 4685   | 4227      | 4528    | 6329     | 9067     | 9471    | 8993     | 8358  | 6716  | 5472  | 5606   | 77329     | 5072  | 4825   | 4672      | 5553    | 6224     | 8567     | 9702    | 10994    | 9583   | 8147  | 8334  | 6645  |  |  |
| Darling Noord    | Business    | 18016 | 18397  | 16999     | 17875   | 15230    | 19421    | 27912   | 20058    | 24960  | 26003 | 20199 | 22381 | 247451 | 17630     | 14223  | 19457     | 16261   | 14184    | 14427    | 22982   | 16268    | 11241 | 11367 | 12999 | 11915  | 182954    | 8102  | 11805  | 9688      | 10967   | 18095    | 11618    | 15112   | 14488    | 11464  | 12941 | 11666 | 10968 |  |  |
|                  | Other       | 3356  | 4233   | 2828      | 5756    | 5703     | 6938     | 6472    | 6523     | 6886   | 6902  | 7960  | 11730 | 75287  | 8170      | 8864   | 7653      | 8149    | 9172     | 11088    | 10084   | 10166    | 13662 | 11446 | 10028 | 5379   | 113861    | 11336 | 2972   | 2344      | 3292    | 25759    | 8818     | 10496   | 9926     | 7212   | 8073  | 5128  | 7286  |  |  |
|                  | Residential | 22837 | 26825  | 19930     | 26457   | 26529    | 34089    | 41365   | 34719    | 38004  | 35006 | 23572 | 24433 | 353766 | 20692     | 19546  | 22065     | 25827   | 29823    | 42193    | 40492   | 35001    | 37966 | 29909 | 28466 | 25943  | 357923    | 25137 | 25554  | 19971     | 24238   | 32714    | 35522    | 42957   | 41470    | 43040  | 32735 | 27111 | 26086 |  |  |
| Darling Suid     | Other       |       |        |           |         |          |          |         |          |        |       |       |       |        |           |        |           |         |          |          |         |          |       |       |       |        |           |       |        |           |         |          |          |         |          |        |       |       |       |  |  |
| Kalbaskraal      | Business    | 136   | 179    | 157       | 209     | 281      | 401      | 482     | 435      | 447    | 303   | 168   | 142   | 3340   | 81        | 108    | 152       | 195     | 332      | 493      | 479     | 352      | 318   | 289   | 161   | 780    | 3740      | 51    | 86     | 108       | 140     | 235      | 312      | 286     | 304      | 207    | 155   | 146   | 76    |  |  |
|                  | Other       | 129   | 81     | 450       | 338     | 159      | 230      | 288     | 350      | 249    | 652   | 319   | 310   | 3555   | 175       | 313    | 334       | 247     | 213      | 209      | 264     | 181      | 280   | 162   | 209   | 173    | 2760      | 181   | 181    | 145       | 174     | 275      | 311      | 181     | 252      | 361    | 346   | 387   | 287   |  |  |
| Koringberg       | Residential | 3555  | 3677   | 3429      | 3561    | 4392     | 5106     | 7044    | 6494     | 5687   | 6033  | 4130  | 4033  | 57141  | 3408      | 3783   | 3732      | 3953    | 4484     | 6159     | 6574    | 6015     | 5931  | 5328  | 4386  | 4357   | 58110     | 3904  | 3667   | 3918      | 3647    | 5149     | 5628     | 6585    | 7436     | 5537   | 4900  | 4752  | 4350  |  |  |
|                  | Business    | 53    | 92     | 110       | 215     | 234      | 307      | 263     | 252      | 249    | 296   | 349   | 197   | 2617   | 77        | 108    | 86        | 244     | 288      | 468      | 278     | 183      | 201   | 292   | 313   | 160    | 2698      | 147   | 175    | 108       | 151     | 304      | 404      | 182     | 216      | 184    | 253   | 257   | 190   |  |  |
|                  | Other       | 110   | 108    | 83        | 197     | 162      | 166      | 239     | 261      | 341    | 198   | 104   | 132   | 2101   | 79        | 76     | 119       | 151     | 240      | 235      | 141     | 220      | 258   | 130   | 199   | 81     | 1929      | 62    | 87     | 46        | 128     | 197      | 197      | 151     | 316      | 230    | 214   | 128   | 90    |  |  |
| Malmesbury       | Residential | 1959  | 2448   | 1850      | 3120    | 3504     | 4167     | 5192    | 5185     | 5674   | 4725  | 2555  | 2268  | 42647  | 2070      | 1836   | 1799      | 2665    | 3951     | 5570     | 4887    | 4805     | 5054  | 23853 | 3004  | 2134   | 61628     | 2182  | 2224   | 1587      | 2258    | 3704     | 4674     | 5485    | 4992     | 3852   | 3685  | 2602  |       |  |  |
|                  | Business    | 31587 | 30807  | 30563     | 30662   | 36285    | 37677    | 34944   | 35262    | 40761  | 41409 | 3914  | 33899 | 417770 | 29210     | 30906  | 32385     | 32186   | 31647    | 37785    | 32376   | 35003    | 35921 | 84943 | 30585 | 30279  | 273340    | 23761 | 29516  | 27515     | 25706   | 32347    | 24140    | 31651   | 33087    | 37944  | 36513 | 33995 | 28953 |  |  |
|                  | Farms       | 2189  | 1928   | 1614      | 2422    | 2637     | 3115     | 3815    | 4766     | 4346   | 5383  | 2724  | 2011  | 36950  | 2152      | 1935   | 3035      | 2349    | 2247     | 3732     | 2642    | 3831     | 4196  | 6299  | 2267  | 2416   | 37101     | 1947  | 1984   | 1912      | 2307    | 2448     | 2647     | 3822    | 4262     | 7243   | 3298  | 2692  | 1996  |  |  |
|                  | Other       | 25398 | 26258  | 23091     | 24218   | 27252    | 31831    | 32911   | 35639    | 33354  | 31164 | 29120 | 26043 | 346279 | 21992     | 22121  | 24774     | 24581   | 25348    | 33633    | 33446   | 29974    | 30301 | 27183 | 25002 | 24037  | 322392    | 19947 | 23671  | 21857     | 22557   | 23894    | 37714    | 28965   | 32427    | 139467 | 27580 | 79248 | 27144 |  |  |
| Moorreesburg     | Residential | 52741 | 58817  | 52812     | 57835   | 70956    | 79539    | 92807   | 106907   | 100030 | 94783 | 67404 | 56060 | 890691 | 48294     | 46877  | 50009     | 54373   | 59544    | 97849    | 98286   | 105236   | 97303 | 85582 | 66070 | 869499 | 47958     | 50428 | 50233  | 49663     | 68597   | 76740    | 100685   | 100274  | 93526    | 79650  | 79248 | 56045 |       |  |  |
|                  | Business    | 9149  | 10104  | 9719      | 9142    | 9744     | 10460    | 9311    | 10295    | 11889  | 10901 | 11472 | 10922 | 123108 | 8253      | 8831   | 9883      | 9761    | 11120    | 14330    | 11147   | 11483    | 9969  | 12145 | 12662 | 9530   | 129114    | 7990  | 10146  | 8490      | 11561   | 12342    | 11895    | 13352   | 15378    | 10873  | 12941 | 13372 | 10424 |  |  |
|                  | Farms       | 1254  | 1808   | 1069      | 485     | 598      | 641      | 878     | 662      | 819    | 686   | 467   | 380   | 9747   | 361       | 383    | 316       | 352     | 752      | 1077     | 994     | 873      | 687   | 474   | 588   | 319    | 7176      | 472   | 431    | 535       | 567     | 686      | 985      | 949     | 964      | 928    | 970   | 858   | 623   |  |  |
|                  | Industrial  | 137   | 155    | 99        | 111     | 129      | 120      | 136     | 151      | 177    | 181   | 334   | 237   | 1967   | 96        | 72     | 83        | 104     | 148      | 326      | 253     | 432      | 337   | 373   | 322   | 276    | 2822      | 443   | 416    | 274       | 72      | 241      | 262      | 166     | 233      | 228    | 297   | 195   | 235   |  |  |
| PPC              | Other       | 1819  | 2333   | 1057      | 1879    | 3631     | 4655     | 5206    | 5252     | 5209   | 4887  | 5926  | 2737  | 44591  | 1744      | 1791   | 2403      | 2365    | 6097     | 7515     | 7326    | 7310     | 7415  | 4420  | 7232  | 1741   | 57359     | 747   | 1286   | 1889      | 1627    | 3933     | 4326     | 5476    | 6992     | 5104   | 3484  | 2205  | 917   |  |  |
|                  | Residential | 32020 | 36000  | 30164     | 38003   | 39783    | 46880    | 58329   | 55501    | 57865  | 50584 | 36183 | 34918 | 516230 | 28397     | 27741  | 31575     | 32933   | 45037    | 56820    | 58337   | 54732    | 50416 | 45106 | 38461 | 32458  | 502013    | 29519 | 34338  | 28589     | 31451   | 46247    | 48119    | 61595   | 63064    | 49802  | 42499 | 36382 |       |  |  |
|                  | Business    | 161   | 167    | 164       | 116     | 167      | 145      | 88      | 241      | 373    | 265   | 172   | 246   | 2305   | 173       | 98     | 77        | 59      | 344      | 209      | 112     | 189      | 273   | 387   | 244   | 96     | 2261      | 1563  | 135    | 97        | 64      | 51       | 67       | 113     | 150      | 195    | 151   | 190   | 70    |  |  |
|                  | Other       | 16    | 8      | 5         | 225     | 469      | 381      | 821     | 1166     | 1093   | 576   | 300   | 6     | 5066   | 0         | 76     | 3         | 4       | 393      | 2186     | 2633    | 2452     | 813   | 929   | 436   | 13     | 9938      | 7     | 576    | 490       | 82      | 214      | 631      | 894     | 698      | 4356   | 1658  | 1188  | 2058  |  |  |
| Riebeeck Kasteel | Residential | 1754  | 1715   | 1544      | 2023    | 2245     | 2612     | 3856    | 3787     | 3489   | 3805  | 2305  | 1858  | 30993  | 1371      | 1312   | 1604      | 1683    | 2397     | 4072     | 4134    | 4291     | 3606  | 2672  | 2218  | 1561   | 30921     | 1264  | 1368   | 1402      | 1670    | 2468     | 2893     | 3923    | 4218     | 3658   | 2307  | 2314  | 1303  |  |  |
|                  | Business    | 1060  | 1403   | 1489      | 2156    | 1748     | 2354     | 2810    | 4621     | 4211   | 3160  | 1908  | 1771  | 28691  | 1405      | 1346   | 1230      | 1771    | 1740     | 2827     | 2658    | 3109     | 3692  | 2804  | 2403  | 2454   | 27439     | 2291  | 1695   | 1609      | 1478    | 2021     | 2086     | 3020    | 4841     | 6290   | 7084  | 3064  | 1543  |  |  |
|                  | Farms       | 188   | 297    | 82        |         |          |          |         |          |        |       |       |       |        |           |        |           |         |          |          |         |          |       |       |       |        |           |       |        |           |         |          |          |         |          |        |       |       |       |  |  |



| 2014/2015 |       |        |           |         |          |          |         |          |       |       |       |       |        | 2015/2016 |        |           |         |          |          |         |          |       |       |       |       |        |       | 2016/2017 |           |          |          |          |         |          |       |       |       |       |        |  |  |
|-----------|-------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|-------|-------|--------|-----------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|-------|-------|--------|-------|-----------|-----------|----------|----------|----------|---------|----------|-------|-------|-------|-------|--------|--|--|
| Total     | July  | August | September | October | November | December | January | February | March | April | May   | June  | Total  | July      | August | September | October | November | December | January | February | March | April | May   | June  | Total  | July  | August    | September | October  | November | December | January | February | March | April | May   | June  | Total  |  |  |
| 1864      |       |        |           |         |          |          |         |          |       |       |       |       | 0      |           |        |           |         |          |          |         |          |       |       |       |       | 0      |       |           |           |          |          |          |         |          |       |       |       |       | 0      |  |  |
| 33        | 20    | 17     | 6         | 0       | 5        | 20       | 12      | 27       | 20    | 17    | 20    | 27    | 191    | 4         | 2      | 3         | 107     | 30       | 16       | 18      | 22       | 1     | 1     | 12    | 9     | 225    | 20    | 8         | 1         | 11       | 15       | 11       | 61      | 19       | 14    | 16    | 25    | 18    | 219    |  |  |
| 2941      | 197   | 173    | 220       | 187     | 213      | 149      | 144     | 207      | 239   | 170   | 352   | 399   | 2650   | 140       | 138    | 313       | 172     | 232      | 286      | 221     | 384      | 244   | 138   | 226   | 202   | 2696   | 196   | 203       | 186       | 141      | 134      | 211      | 220     | 295      | 221   | 315   | 184   | 206   | 2512   |  |  |
| 103357    | 5994  | 7104   | 7154      | 7848    | 10476    | 8907     | 13792   | 10504    | 10584 | 10856 | 9844  | 10705 | 113768 | 5431      | 8271   | 10516     | 10411   | 12262    | 11389    | 14593   | 13421    | 9048  | 10146 | 8291  | 8079  | 121858 | 9038  | 8794      | 8390      | 9375     | 9308     | 11536    | 11848   | 9449     | 9598  | 10202 | 9724  | 8563  | 115825 |  |  |
| 9         | 7     | 7      | 6         | 10      | 25       | 18       | 50      | 17       | 11    | 5     | 5     | 6     | 167    | 5         | 1      | 1         | 1       | 2        | 2        | 1       | 1        | 122   | 5     | 2     | 3     | 146    | 4     | 0         | 0         | 0        | 0        | 0        | 0       | 0        | 0     | 0     | 0     | 0     | 4      |  |  |
| 12230     | 753   | 724    | 718       | 739     | 885      | 775      | 750     | 701      | 903   | 847   | 830   | 902   | 9527   | 697       | 1018   | 980       | 1120    | 1025     | 924      | 962     | 997      | 814   | 1130  | 963   | 942   | 11572  | 1575  | 783       | 1070      | 1098     | 974      | 1231     | 1162    | 925      | 1030  | 1052  | 1160  | 1111  | 13171  |  |  |
| 88318     | 5286  | 6043   | 5794      | 7247    | 10347    | 9818     | 14452   | 11430    | 11835 | 10219 | 8792  | 8143  | 109406 | 4412      | 7370   | 7207      | 8950    | 10269    | 10264    | 14158   | 13886    | 8530  | 10040 | 8032  | 7703  | 110821 | 7942  | 7015      | 7795      | 9066     | 8245     | 12130    | 11411   | 9645     | 8766  | 9177  | 8899  | 8335  | 108426 |  |  |
| 146914    | 11004 | 10584  | 12348     | 14621   | 12408    | 13432    | 15327   | 12728    | 13126 | 12546 | 12444 | 14736 | 155304 | 11651     | 10689  | 12587     | 12119   | 15242    | 13546    | 14273   | 13200    | 2840  | 9175  | 20675 | 8852  | 144849 | 9453  | 10312     | 10214     | 10422    | 8268     | 12721    | 12658   | 13792    | 8052  | 15084 | 11275 | 12615 | 134866 |  |  |
| 102642    | 1882  | 1969   | 7338      | 7400    | 8715     | 9432     | 11652   | 7400     | 9061  | 6490  | 3547  | 6647  | 81533  | 3022      | 3812   | 2777      | 2982    | 13433    | 6644     | 3391    | 4977     | 2424  | 2790  | 2361  | 2022  | 50635  | 1578  | 2273      | 2037      | 2350     | 3086     | 3317     | 2438    | 2310     | 2052  | 2904  | 2745  | 2128  | 29218  |  |  |
| 376535    | 19059 | 24318  | 24941     | 34207   | 33029    | 37666    | 48692   | 33187    | 36226 | 35376 | 31096 | 32191 | 389988 | 20996     | 23584  | 27537     | 30873   | 34679    | 36098    | 45644   | 36557    | 23979 | 27002 | 24206 | 22175 | 353330 | 22769 | 31677     | 33828     | 23892    | 26662    | 34622    | 33682   | 45838    | 23941 | 29319 | 24158 | 24751 | 355139 |  |  |
| 2106      | 55    | 86     | 162       | 210     | 355      | 386      | 568     | 389      | 374   | 327   | 251   | 160   | 3323   | 143       | 134    | 163       | 222     | 380      | 403      | 629     | 520      | 270   | 259   | 125   | 104   | 3352   | 120   | 154       | 121       | 145      | 142      | 152      | 233     | 149      | 154   | 313   | 142   | 147   | 1972   |  |  |
| 3081      | 262   | 146    | 134       | 148     | 189      | 329      | 216     | 249      | 231   | 122   | 135   | 124   | 2285   | 78        | 102    | 112       | 56      | 93       | 97       | 69      | 93       | 89    | 71    | 64    | 54    | 978    | 54    | 552       | 104       | 91       | 97       | 167      | 157     | 412      | 135   | 134   | 143   | 182   | 2228   |  |  |
| 59473     | 3128  | 4072   | 4192      | 4168    | 5754     | 5286     | 7583    | 5741     | 5966  | 5683  | 4923  | 4964  | 61460  | 2539      | 4019   | 4099      | 4445    | 5866     | 6761     | 8344    | 7792     | 4867  | 5647  | 5100  | 3965  | 63444  | 4649  | 4304      | 4298      | 4766     | 5024     | 5949     | 7085    | 5340     | 5066  | 5321  | 5039  | 4711  | 61552  |  |  |
| 2571      | 83    | 179    | 198       | 414     | 311      | 368      | 221     | 260      | 264   | 393   | 378   | 514   | 3583   | 152       | 120    | 306       | 487     | 460      | 633      | 574     | 569      | 469   | 559   | 523   | 363   | 5215   | 209   | 163       | 305       | 380      | 277      | 495      | 715     | 544      | 599   | 710   | 680   | 263   | 5340   |  |  |
| 1846      | 44    | 96     | 139       | 473     | 173      | 204      | 219     | 244      | 312   | 293   | 157   | 171   | 2525   | 154       | 84     | 102       | 204     | 578      | 292      | 275     | 222      | 217   | 104   | 55    | 43    | 2330   | 79    | 64        | 149       | 89       | 92       | 118      | 142     | 184      | 172   | 143   | 75    | 89    | 1396   |  |  |
| 37245     | 1738  | 2243   | 2694      | 4515    | 4521     | 5529     | 7407    | 5224     | 5871  | 4996  | 4252  | 3883  | 52873  | 3932      | 2497   | 2928      | 4127    | 4679     | 4131     | 7323    | 6260     | 3087  | 3712  | 2761  | 2449  | 47886  | 2159  | 2302      | 2138      | 3091     | 3857     | 4872     | 6838    | 4284     | 4462  | 3842  | 3859  | 2825  | 44529  |  |  |
| 365128    | 27584 | 28802  | 28094     | 29463   | 34832    | 34265    | 40607   | 32527    | 35299 | 33550 | 31713 | 33349 | 390085 | 29617     | 29141  | 31259     | 34377   | 36118    | 31050    | 32912   | 38927    | 31059 | 29779 | 31045 | 30453 | 385737 | 29603 | 33776     | 30548     | 31985    | 33777    | 38993    | 38152   | 35432    | 36913 | 37367 | 34654 | 36637 | 417837 |  |  |
| 36558     | 1736  | 2132   | 1989      | 2453    | 3396     | 4520     | 6728    | 5740     | 5976  | 4563  | 3466  | 3551  | 46250  | 2400      | 2461   | 1998      | 3210    | 5285     | 4066     | 4498    | 6945     | 4375  | 2960  | 2529  | 2295  | 43022  | 1432  | 1577      | 2901      | 1647     | 2616     | 2772     | 3599    | 4477     | 2681  | 2444  | 2203  | 1812  | 30161  |  |  |
| 433151    | 18807 | 24480  | 23869     | 25267   | 25632    | 34093    | 37992   | 30880    | 40404 | 37577 | 35002 | 26763 | 360766 | 26314     | 24685  | 22033     | 29236   | 36057    | 26701    | 29689   | 31513    | 21674 | 20570 | 21251 | 21530 | 311253 | 22620 | 26186     | 24862     | 17087    | 21565    | 22612    | 25671   | 25846    | 19821 | 15883 | 15263 | 15116 | 252532 |  |  |
| 853047    | 48300 | 52546  | 51878     | 58991   | 85558    | 82819    | 112977  | 99425    | 95599 | 89093 | 84257 | 69297 | 930740 | 45727     | 52743  | 54069     | 64681   | 82886    | 82491    | 87841   | 102058   | 61901 | 55218 | 45418 | 46432 | 781465 | 47317 | 47307     | 82831     | 51839.07 | 76413    | 73235    | 78565   | 74705    | 62964 | 58066 | 52741 | 48540 | 754523 |  |  |
| 138764    | 8343  | 8578   | 10025     | 12531   | 13014    | 11357    | 12476   | 10484    | 11845 | 11187 | 12156 | 11256 | 133252 | 9039      | 8622   | 10014     | 10910   | 12799    | 10536    | 9150    | 13481    | 7991  | 11257 | 10611 | 7123  | 121533 | 7881  | 7291      | 7328      | 5800     | 6445     | 8735     | 7745    | 6991     | 6156  | 8298  | 6432  | 8208  | 87310  |  |  |
| 8968      | 478   | 432    | 463       | 673     | 779      | 749      | 826     | 672      | 590   | 616   | 597   | 519   | 7394   | 336       | 494    | 519       | 750     | 901      | 1052     | 1013    | 984      | 575   | 626   | 490   | 467   | 8207   | 439   | 624       | 388       | 493      | 582      | 749      | 538     | 527      | 557   | 744   | 422   | 364   | 6427   |  |  |
| 3062      | 172   | 205    | 168       | 249     | 154      | 201      | 230     | 132      | 133   | 200   | 133   | 143   | 2120   | 88        | 97     | 139       | 125     | 196      | 173      | 189     | 287      | 238   | 255   | 221   | 235   | 2243   | 315   | 383       | 282       | 221      | 250      | 465      | 190     | 174      | 225   | 590   | 313   | 424   | 3832   |  |  |
| 37986     | 842   | 990    | 2430      | 3349    | 3236     | 4149     | 6492    | 4592     | 3731  | 3430  | 2383  | 1578  | 37202  | 961       | 907    | 1054      | 3332    | 4744     | 3251     | 3044    | 3285     | 1017  | 831   | 886   | 975   | 24287  | 1027  | 1011      | 903       | 1174     | 1178     | 1803     | 2960    | 1984     | 1794  | 1618  | 1284  | 1187  | 17923  |  |  |
| 521407    | 28133 | 32830  | 35475     | 45608   | 52722    | 53134    | 69358   | 54872    | 54303 | 52278 | 45713 | 42548 | 566974 | 28985     | 34109  | 37024     | 44322   | 53962    | 47768    | 69678   | 56193    | 31819 | 37218 | 31298 | 30222 | 502598 | 32891 | 33194     | 30863     | 42691    | 35030    | 48931    | 48914   | 39755    | 35202 | 38840 | 34616 | 33130 | 454057 |  |  |
| 2846      | 97    | 221    | 152       | 140     | 188      | 166      | 145     | 181      | 159   | 274   | 178   | 29    | 1930   | 455       | 219    | 107       | 84      | 145      | 153      | 217     | 436      | 444   | 482   | 185   | 164   | 3091   | 278   | 198       | 255       | 139      | 169      | 128      | 81      | 151      | 233   | 268   | 234   | 32    | 2166   |  |  |
| 12852     | 17    | 27     | 12        | 223     | 831      | 673      | 1168    | 430      | 456   | 481   | 285   | 145   | 4748   | 95        | 94     | 81        | 239     | 293      | 577      | 458     | 1182     | 60    | 102   | 10    | 13    | 3204   | 14    | 21        | 22        | 45       | 130      | 76       | 344     | 226      | 184   | 11    | 35    | 25    | 1133   |  |  |
| 28788     | 1186  | 1406   | 1515      | 2370    | 2906     | 2910     | 4690    | 3119     | 3079  | 3345  | 2401  | 2191  | 31118  | 1424      | 1367   | 1562      | 1732    | 2510     | 2911     | 2840    | 3151     | 1250  | 1390  | 1096  | 1035  | 22268  | 1349  | 1311      | 1484      | 1265     | 1443     | 2054     | 2028    | 1586     | 1428  | 1507  | 1557  | 1227  | 18239  |  |  |
| 37022     | 1521  | 1492   | 1291      |         |          |          |         |          |       |       |       |       |        |           |        |           |         |          |          |         |          |       |       |       |       |        |       |           |           |          |          |          |         |          |       |       |       |       |        |  |  |



| 2017/2018 |        |           |          |          |          |         |          |       |       |       |       |        | 2018/2019 |        |           |         |          |          |         |          |       |       |       |       |        | 2019/2020 |        |           |         |          |          |         |          |       |       |       |       |        |   |
|-----------|--------|-----------|----------|----------|----------|---------|----------|-------|-------|-------|-------|--------|-----------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|-------|-------|--------|-----------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|-------|-------|--------|---|
| July      | August | September | October  | November | December | January | February | March | April | May   | June  | Total  | July      | August | September | October | November | December | January | February | March | April | May   | June  | Total  | July      | August | September | October | November | December | January | February | March | April | May   | June  | Total  |   |
| 8         | 9      | 5         | 4        | 4        | 4        | 4       | 4        | 20    | 21    | 12    | 9     | 104    | 15        | 10     | 3         | 14      | 8        | 32       | 10      | 16       | 9     | 11    | 23    | 14    | 165    | 13        | 6      | 7         | 6       | 2        | 22       | 39      | 17       | 34    | 15    | 15    | 5     | 181    |   |
| 171       | 263    | 182       | 216      | 140      | 154      | 133     | 164      | 178   | 141   | 223   | 263   | 2228   | 243       | 546    | 149       | 123     | 154      | 147      | 88      | 160      | 221   | 117   | 228   | 249   | 2425   | 184       | 256    | 316       | 235     | 409      | 342      | 164     | 196      | 175   | 226   | 226   | 963   | 3692   |   |
| 9276      | 6574   | 8108      | 8748     | 7795     | 7778     | 8750    | 6248     | 6864  | 7579  | 6876  | 6574  | 91170  | 7537      | 7099   | 7835      | 8081    | 8475     | 9155     | 10649   | 9317     | 27576 | 8148  | 9237  | 8488  | 121597 | 8140      | 8287   | 7658      | 7856    | 9203     | 8554     | 10216   | 9823     | 10794 | 8145  | 8470  | 7482  | 104628 |   |
| 0         | 320    | 0         | 711      | 737      | 700      | 839     | 801      | 780   | 383   | 360   | 320   | 5951   | 181       | 443    | 314       | 312     | 679      | 302      | 384     | 455      | 127   | 385   | 395   | 381   | 4358   | 377       | 320    | 336       | 344     | 6        | 155      | 218     | 217      | 278   | 278   | 278   | 3085  |        |   |
| 1311      | 412    | 984       | 292      | 331      | 560      | 522     | 399      | 318   | 526   | 278   | 417   | 6350   | 372       | 557    | 512       | 425     | 652      | 534      | 498     | 482      | 490   | 426   | 538   | 491   | 5977   | 495       | 469    | 485       | 508     | 673      | 603      | 552     | 647      | 642   | 550   | 538   | 551   | 6713   |   |
| 7772      | 5707   | 7059      | 8079     | 6212     | 7388     | 8098    | 6521     | 6052  | 6815  | 5964  | 5707  | 81374  | 6686      | 6561   | 6768      | 7316    | 8457     | 10125    | 10367   | 9689     | 8601  | 7443  | 9022  | 9221  | 100256 | 7989      | 7567   | 7291      | 7557    | 8691     | 8787     | 11194   | 11121    | 11305 | 8316  | 8244  | 8162  | 106224 |   |
| 10759     | 9340   | 11017     | 11408    | 11005    | 11301    | 12005   | 10197    | 11844 | 10693 | 11011 | 9340  | 129920 | 9474      | 9354   | 8471      | 8171    | 9400     | 7207     | 8410    | 7625     | 7396  | 8091  | 7744  | 5649  | 96992  | 5341      | 7860   | 6082      | 7739    | 7146     | 7614     | 7795    | 8327     | 8389  | 7322  | 6233  | 7207  | 87055  |   |
| 1667      | 304    | 2148      | 1504     | 1829     | 1496     | 671     | 529      | 805   | 601   | 980   | 814   | 13348  | 971       | 782    | 957       | 1614    | 1482     | 1015     | 1230    | 1141     | 951   | 922   | 929   | 960   | 12954  | 553       | 1128   | 1012      | 1396    | 1130     | 1414     | 1482    | 1057     | 1058  | 1019  | 954   | 848   | 13051  |   |
| 21388     | 16134  | 21462     | 21197.92 | 19677    | 22093    | 21824   | 14937    | 17061 | 17834 | 18662 | 16134 | 228404 | 16877     | 18641  | 17814     | 20289   | 21371    | 21450    | 25337   | 22740    | 21101 | 21100 | 24982 | 22828 | 254530 | 18808     | 22488  | 21021     | 23962   | 21062    | 24948    | 29723   | 26116    | 26104 | 21557 | 21487 | 22637 | 279913 |   |
|           |        |           | 24       | 38       | 88       | 142     | 222      | 1550  | 70    | 56    | 63    | 2253   |           |        |           |         |          |          |         |          |       |       |       |       | 0      |           |        |           |         |          |          |         |          |       |       |       |       | 0      |   |
| 116       | 72     | 110       | 82       | 83       | 98       | 348     | 128      | 69    | 78    | 76    | 72    | 1332   | 76        | 66     | 71        | 64      | 88       | 136      | 104     | 68       | 76    | 146   | 96    | 87    | 1078   | 89        | 87     | 73        | 79      | 83       | 77       | 92      | 90       | 89    | 80    | 80    | 105   | 1024   |   |
| 114       | 70     | 294       | 148      | 93       | 91       | 168     | 93       | 110   | 92    | 72    | 79    | 1424   | 73        | 146    | 208       | 84      | 123      | 338      | 197     | 245      | 218   | 116   | 149   | 120   | 2017   | 84        | 92     | 89        | 98      | 114      | 107      | 174     | 163      | 177   | 108   | 108   | 59    | 1373   |   |
| 4320      | 3250   | 4081      | 4457     | 3725     | 3953     | 4459    | 3353     | 3297  | 3667  | 3345  | 3250  | 45157  | 3659      | 3439   | 3831      | 3735    | 4713     | 4085     | 5457    | 4679     | 4106  | 9722  | 4486  | 4222  | 56134  | 3619      | 4012   | 3757      | 3851    | 4664     | 4749     | 5637    | 4936     | 5439  | 4014  | 3929  | 4437  | 53044  |   |
| 108       | 161    | 257       | 416      | 265      | 353      | 214     | 149      | 225   | 368   | 374   | 161   | 3051   | 40        | 182    | 221       | 413     | 412      | 343      | 207     | 210      | 298   | 289   | 312   | 134   | 3061   | 54        | 115    | 253       | 374     | 438      | 299      | 247     | 212      | 249   | 215   | 228   | -322  | 2362   |   |
| 121       | 56     | 144       | 87       | 94       | 138      | 97      | 98       | 107   | 77    | 60    | 56    | 1135   | 27        | 40     | 71        | 85      | 85       | 63       | 122     | 116      | 87    | 88    | 120   | 88    | 992    | 148       | 96     | 78        | 119     | 154      | 63       | 61      | 121      | 91    | 94    | 94    | 89    | 1208   |   |
| 2486      | 1581   | 2237      | 2381     | 2040     | 2156     | 3462    | 1858     | 1984  | 2151  | 1841  | 1581  | 25758  | 1671      | 2015   | 1668      | 2037    | 2453     | 2331     | 2936    | 2780     | 2234  | 2465  | 2912  | 2360  | 27862  | 1778      | 1982   | 2130      | 2514    | 2959     | 2552     | 3427    | 3514     | 3349  | 2476  | 2385  | 2296  | 31362  |   |
| 32900     | 24859  | 36250     | 24061    | 28038    | 28422    | 26625   | 22314    | 22732 | 23164 | 24777 | 24885 | 319027 | 23432     | 24014  | 21988     | 22233   | 27879    | 27122    | 23243   | 22478    | 19585 | 21790 | 21739 | 22966 | 278469 | 22080     | 23378  | 25902     | 26256   | 32091    | 30022    | 32620   | 23122    | 35076 | 26765 | 29108 | 35443 | 341863 |   |
| 1415      | 1212   | 2379      | 1224     | 2167     | 1780     | 1815    | 1575     | 1483  | 1807  | 1386  | 1212  | 19455  | 1363      | 1590   | 1687      | 24382   | 6398     | 8051     | 6709    | 12095    | 6777  | 6973  | 6177  | 8308  | 90510  | 9527      | 9325   | 7106      | 7960    | 10861    | 8148     | 11835   | 10673    | 11683 | 8837  | 8840  | 7075  | 111870 |   |
| 16505     | 15614  | 15758     | 16938    | 16348    | 26152    | 16044   | 18161    | 9838  | 20492 | 34755 | 33890 | 240495 | 19438     | 14843  | 16735     | 17575   | 17648    | 19901    | 17142   | 18817    | 16899 | 15470 | 19053 | 17428 | 210949 | 18404     | 14699  | 17334     | 16728   | 34097    | 19312    | 18389   | 26578    | 24035 | 21825 | 14479 | 16315 | 242195 |   |
| 46929     | 33237  | 47645     | 52423.42 | 49573    | 39068    | 47019   | -19584   | 47559 | 37712 | 38689 | 26979 | 447249 | 36664     | 34083  | 39457     | 37654   | 41043    | 44310    | 46236   | 52436    | 47184 | 44452 | 48121 | 51337 | 522977 | 43157     | 43749  | 49923     | 48014   | 55629    | 53644    | 58627   | 68446    | 63876 | 50727 | 49588 | 55428 | 640808 |   |
| 6205      | 3778   | 7218      | 6218     | 5430     | 4723     | 4339    | 3702     | 3969  | 3994  | 4072  | 3778  | 57426  | 3757      | 4160   | 4603      | 4847    | 5825     | 4957     | 4593    | 5254     | 4820  | 5023  | 6686  | 6132  | 60657  | 4206      | 4563   | 4800      | 4541    | 5448     | 4322     | 5256    | 3795     | 6295  | 4825  | 4828  | 3499  | 56378  |   |
| 257       | 155    | 272       | 357      | 339      | 403      | 410     | 277      | 197   | 173   | 222   | 155   | 3217   | 125       | 151    | 316       | 183     | 373      | 321      | 344     | 365      | 303   | 316   | 327   | 252   | 3376   | 179       | 215    | 185       | 244     | 287      | 300      | 307     | 423      | 432   | 263   | 266   | 476   | 3577   |   |
| 345       | 220    | 409       | 371      | 327      | 379      | 323     | 266      | 345   | 411   | 270   | 220   | 3886   | 188       | 201    | 300       | 404     | 214      | 248      | 197     | 178      | 255   | 202   | 106   | 125   | 2618   | 78        | 84     | 97        | 135     | 126      | 116      | 163     | 321      | 377   | 141   | 141   | 27    | 1806   |   |
| 916       | 717    | 989       | 1304     | 1042     | 890      | 872     | 862      | 1429  | 926   | 914   | 814   | 11675  | 897       | 945    | 1476      | 1644    | 2057     | 2035     | 3212    | 3047     | 2157  | 1944  | 2811  | 2867  | 25092  | 1754      | 1945   | 2722      | 2775    | 3947     | 3693     | 5016    | 4287     | 3618  | 2939  | 2934  | 4392  | 40022  |   |
| 30006     | 20487  | 27316     | 27790    | 26308    | 25651    | 27428   | 20213    | 21981 | 23151 | 22857 | 20487 | 293675 | 22290     | 24374  | 23629     | 25084   | 27752    | 26259    | 32715   | 30538    | 26737 | 27429 | 32657 | 31086 | 330550 | 24840     | 28327  | 27683     | 27383   | 29269    | 31096    | 37300   | 33593    | 39074 | 29175 | 28759 | 32523 | 369022 |   |
| 271       | 0      | 193       | 208      | 192      | 55       | 0       | 0        | 0     | 0     | 0     | 0     | 919    | 0         | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0     | 0     | 0     | 0     | 0      | 0         | 0      | 0         | 0       | 0        | 0        | 0       | 0        | 0     | 0     | 0     | 0     | 0      |   |
| 16        | 0      | 11        | 12       | 18       | 170      | 373     | 43       | 192   | 1     | 0     | 0     | 836    | 2         | 3      | 0         | 0       | 0        | 0        | 0       | 0        | 0     | 0     | 0     | 0     | 0      | 5         | 3      | 0         | 0       | 1        | 0        | 0       | 0        | 0     | 0     | 0     | 0     | 0      | 4 |
| 1271      | 571    | 991       | 1023     | 771      | 762      | 792     | 555      | 550   | 628   | 688   | 600   | 9202   | 822       | 782    | 691       | 875     | 1067     | 1243     | 1128    | 1084     | 687   | 945   | 1122  | 1007  | 11453  | 929       | 887    | 848       | 888     | 1077     | 1174     | 1313    | 1368     | 1482  | 969   | 960   | 898   | 12793  |   |
| 1234      | 714    | 956       | 1129     | 924      | 1128     | 1303    | 910      | 1128  | 933   | 728   | 714   | 11801  | 1749      | 1548   | 913       | 1159    | 1101     | 846      | 1310    | 1090     | 1141  | 2062  | 1991  | 1719  | 16629  | 900       | 1063   | 1234      | 1009    | 1350     | 1810     | 2050    | 1718     | 3841  | 1537  | 1416  | 157   | 18085  |   |
| 852       | 451    | 766       | 625      | 516      | 555      | 644     | 507      | 579   | 594   | 526   | 451   | 7066   | 832       | 648    | 661       | 750     | 647      | 571      | 674     | 529      | 378   | 658   | 577   | 565   | 7490   | 407       | 644    | 465       | 419     | 493      | 522      | 740     | 579      | 1031  | 561   | 561   | 275   | 6697   |   |
| 374       | 235    |           |          |          |          |         |          |       |       |       |       |        |           |        |           |         |          |          |         |          |       |       |       |       |        |           |        |           |         |          |          |         |          |       |       |       |       |        |   |



| 2020/2021 |       |       |       |       |       |       |       |       |          |          |          |        | 2021/2022 |       |       |       |       |       |       |       |       |       |       |       |        | 2022/2023 |       |       |       |       |       |       |       |       |       |       |       |        |   |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|----------|----------|----------|--------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|---|
| Jul       | Aug   | Sept  | Oct   | Nov   | Dec   | Jan   | Febr  | Mar   | Apr      | May      | Jun      | Total  | Jul       | Aug   | Sept  | Oct   | Nov   | Dec   | Jan   | Febr  | Mar   | Apr   | May   | Jun   | Total  | Jul       | Aug   | Sept  | Oct   | Nov   | Dec   | Jan   | Febr  | Mar   | Apr   | May   | Jun   | Total  |   |
| 14        | -6    | 10    | 22    | 13    | 13    | 5     | 21    | 17    | 86       | 34.01    | 25       | 254    | -26       | 10    | 9     | -8    | 13    | -7    | 14    | 6     | 26    | 28    | 30    | -6    | 89     | 6         | 5     | 17    | 3     | 23    | 16    | 10    | 41    | 7     | 43    | 20    | -31   | 160    |   |
| -715      | 108   | 230   | 383   | 280   | 407   | 236   | 348   | 449   | 298      | 328      | 394      | 2746   | 410       | 297   | 1383  | 454   | 624   | 301   | 343   | 443   | 251   | 358   | 241   | 215   | 5320   | 111       | 219   | 121   | 128   | 272   | 288   | 399   | 14    | 290   | 364   | 196   | 204   | 2607   |   |
| 8921      | 805   | 11133 | 9257  | 10961 | 10039 | 13758 | 9068  | 11055 | 11727.25 | 10442.13 | 9810.88  | 116977 | 10785     | 9852  | 10767 | 10502 | 10081 | 10863 | 14499 | 11475 | 11742 | 11853 | 11630 | 10284 | 134333 | 10696     | 12389 | 9479  | 11920 | 11220 | 11153 | 14448 | 10590 | 10693 | 12673 | 7414  | 13150 | 135827 |   |
| 278       | -1034 | 1230  | 133   | 113   | 212   | 530   | 413   | 422   | 422      | 459      | 435      | 3613   | 441       | 209   | 200   | -8    | 401   | 1311  | 319   | 3623  | 405   | 427   | 439   | 130   | 7897   | 551       | 246   | 652   | 449   | 449   | 358   | 840   | 801   | 802   | 413   | 657   | 1705  | 7923   |   |
| 527       | 598   | 1098  | 761   | 459   | 588   | 772   | 370   | 481   | 469      | 416.01   | 570      | 7108   | 463       | 606   | 575   | 419   | 722   | 520   | 568   | 623   | 295   | 1555  | 1680  | 412   | 8437   | 1701      | 1212  | 1831  | 1673  | 1770  | 1934  | 2196  | 1803  | 1974  | 1824  | 1728  | 1913  | 21559  |   |
| 4199      | 12268 | 18171 | 12675 | 12774 | 12698 | 18160 | 14810 | 11483 | 14741.7  | 14589.64 | 10650.91 | 157222 | 12450     | 12390 | 11828 | 6838  | 11861 | 12338 | 14131 | 13020 | 15538 | 12685 | 16103 | 20416 | 159599 | 12289     | 22858 | 20767 | 17660 | 21427 | 20846 | 27424 | 15841 | 14503 | 16419 | 22902 | 16410 | 229345 |   |
| 6287      | 3566  | 8248  | 5167  | 6906  | 7010  | 8091  | 10816 | 3303  | 7216     | 6628     | 5487     | 78725  | 6447      | 9597  | 7747  | 6031  | 9875  | 9307  | 10388 | 9982  | 10223 | 9747  | 7339  | 7275  | 103959 | 6475      | 12699 | 9227  | 16303 | 8285  | 10637 | 15044 | 4153  | 7713  | 11313 | 10274 | 7649  | 119771 |   |
| 977       | 1094  | 1013  | 633   | 1300  | 1764  | 1635  | 1751  | 1749  | 3703     | -166     | 1457     | 16910  | 1690      | 1643  | 1574  | 6028  | 1385  | 2349  | -1460 | 1834  | 1521  | 1542  | 1100  | 1484  | 20691  | 1534      | 3450  | 361   | 1067  | 2237  | 2495  | 2165  | 2362  | 1444  | 1484  | 1689  | 1655  | 21943  |   |
| 20445     | 36446 | 21059 | 23052 | 24978 | 29444 | 35256 | 29078 | 27708 | 28805.95 | 26881.92 | 21566.36 | 324719 | 23808     | 27931 | 22436 | 22439 | 28487 | 29175 | 34607 | 29921 | 27306 | 31688 | 25051 | 24788 | 327638 | 19658     | 24433 | 22893 | 27100 | 29585 | 27985 | 35631 | 17011 | 26491 | 41491 | 25984 | 23839 | 322101 |   |
|           |       |       |       |       |       |       |       |       |          |          |          | 0      |           |       |       |       |       |       |       |       |       |       |       |       | 0      |           |       |       |       |       |       |       |       |       |       |       |       |        | 0 |
| 82        | 104   | 39    | 105   | 171   | 114   | 134   | 128   | 139   | 101      | 92       | 87       | 1296   | 100       | 114   | 86    | 1511  | 241   | 75    | 222   | 97    | 97    | 91    | 88    | 85    | 2807   | 75        | 332   | 354   | 101   | 288   | -435  | 126   | 126   | 101   | 142   | 52    | 141   | 1402   |   |
| 106       | 103   | -47   | 104   | 94    | 100   | 163   | 175   | 170   | 201      | 163      | 147      | 1479   | 193       | 168   | 126   | 160   | 201   | 224   | 135   | 112   | 166   | 1401  | 247   | 335   | 3469   | 141       | 313   | 144   | 239   | 508   | 489   | 348   | 812   | 515   | 436   | 263   | 1103  | 5312   |   |
| 4051      | 10524 | 3828  | 5032  | 4906  | 4847  | 6200  | 6113  | 5650  | 5452.12  | 5370.73  | 4649.6   | 66624  | 4890      | 4699  | 4357  | 4967  | 5047  | 5110  | 7745  | 4994  | 5475  | 6095  | 5703  | 4569  | 63652  | 4491      | 5629  | 4503  | 5698  | 6283  | 6320  | 6836  | 6525  | 6088  | 6460  | 5263  | 5411  | 69508  |   |
| 168       | 86    | 53    | -77   | 165   | -19   | 257   | 210   | 127   | 115.17   | 84.66    | 46       | 1216   | 32        | 39    | 60    | 106   | 71    | 80    | 129   | 1970  | 708   | 169   | 912   | 467   | 4743   | 450       | 614   | 434   | 340   | 579   | 439   | 270   | 365   | 332   | 631   | 559   | 436   | 5448   |   |
| 65        | 345   | 204   | 51    | 111   | 19    | 95    | 25    | 109   | 81       | 94       | 23       | 1222   | 26        | 64    | 35    | 91    | 142   | 75    | 158   | 97    | -7    | 112   | 204   | 154   | 1151   | 78        | 93    | 68    | 134   | 125   | 85    | 651   | 88    | 676   | 116   | 137   | -5    | 2246   |   |
| 2272      | 5841  | 1572  | 3110  | 2459  | 3864  | 4796  | 4293  | 3510  | 3460.69  | 3001.13  | 2399.3   | 40579  | 2207      | 2730  | 2280  | 2977  | 3259  | 3399  | 4156  | 6111  | 2274  | 2308  | 3020  | 2702  | 37424  | 2077      | 2829  | 2481  | 3246  | 3823  | 3766  | 3950  | 4403  | 4073  | 3667  | 1858  | 2965  | 39137  |   |
| 30033     | 25552 | 29014 | 28937 | 30783 | 30682 | 38831 | 32310 | 34451 | 38528.99 | 36234.55 | 30532.13 | 385888 | 29020     | 29140 | 39777 | 32918 | 31481 | 22618 | 40505 | 42030 | 38991 | 37254 | 38885 | 32213 | 414832 | 23747     | 42201 | 34540 | 30856 | 66517 | 44793 | 53462 | 21608 | 31848 | 42693 | 39331 | 25655 | 457252 |   |
| 8407      | 8973  | 10075 | 7149  | 10148 | 8578  | 11242 | 10796 | 10457 | 8182.06  | 8310.09  | 8059.92  | 110377 | 8311      | 2429  | 8805  | -649  | 4183  | 4748  | 8737  | 9191  | 9600  | 9337  | 9128  | 5654  | 79473  | 5435      | -649  | 5676  | 6743  | 5549  | 3732  | 7903  | 13340 | 8957  | 8369  | 8234  | 3448  | 76739  |   |
| 21498     | 14503 | 20726 | 14643 | 24569 | 20310 | 21582 | 27176 | 25147 | 19513.99 | 21600    | 16246    | 247514 | 18478     | 18935 | 24823 | 19391 | 22492 | 21002 | 25845 | 23019 | 16715 | 25245 | 24581 | 18065 | 258591 | 18079     | 21689 | 21392 | 20999 | 24256 | 21310 | 23785 | 26272 | 18487 | 17469 | 17671 | 22580 | 253988 |   |
| 47413     | 48422 | 65727 | 9223  | 58365 | 55675 | 77760 | 74092 | 65453 | 73058.06 | 57727.89 | 50407.05 | 683322 | 58253     | 53694 | 59624 | 61103 | 58031 | 60859 | 78140 | 74869 | 79061 | 71348 | 67669 | 58936 | 781588 | 55819     | 54379 | 57623 | 60459 | 71453 | 68559 | 76017 | 76962 | 70678 | 63415 | 60604 | 57763 | 773732 |   |
| 4581      | 4411  | 4788  | 5190  | 5394  | 5310  | 6195  | 6778  | 6397  | 5726.96  | 6304.61  | 5028     | 66104  | 4921      | 7137  | 5866  | 6357  | 5999  | 6181  | 5583  | 5785  | 7963  | 6720  | 5573  | 4138  | 72223  | 4745      | 5304  | 6674  | 6086  | 6351  | 5501  | 6009  | 6754  | 9057  | 4215  | 6968  | 5126  | 72790  |   |
| 240       | 239   | 305   | 306   | 653   | 695   | 723   | 519   | 682   | 554.99   | 544.99   | 321.99   | 5784   | 425       | 345   | 288   | 516   | 544   | 600   | 670   | 494   | 263   | 795   | 535   | 557   | 6032   | 423       | 426   | 446   | 517   | 632   | 554   | 578   | 656   | 552   | 605   | 507   | 23    | 5919   |   |
| 138       | 166   | 101   | 134   | 107   | 145   | 114   | 130   | 110   | 125.3    | 88.2     | 94       | 1452   | 167       | 148   | 82    | 146   | 147   | 158   | 130   | 19    | 416   | 227   | 216   | 244   | 2100   | 282       | 379   | 169   | 209   | 187   | 129   | 181   | 116   | 153   | 155   | 106   | 149   | 2215   |   |
| 3254      | 1050  | 3864  | 3580  | 5196  | 2685  | 5462  | 4674  | 4718  | 4708.69  | 3112.8   | 2884     | 45188  | 2126      | -19   | 1930  | 1324  | 2122  | 3028  | -691  | 2810  | 4879  | 3316  | 4082  | 2023  | 26930  | 1410      | 1907  | 1430  | 2525  | 2435  | 4940  | 3662  | 4567  | 3473  | 3314  | 3164  | 1825  | 34653  |   |
| 36159     | 36145 | 26041 | 33417 | 31554 | 33364 | 44616 | 40914 | 35837 | 37730.25 | 32303.69 | 28506.77 | 416587 | 22660     | 29758 | 27207 | 30786 | 34777 | 37185 | 45316 | 39167 | 40338 | 41457 | 36922 | 30393 | 415964 | 27844     | 30039 | 25735 | 34797 | 38025 | 34325 | 38788 | 42597 | 33861 | 38386 | 30369 | 31544 | 406312 |   |
| 0         | 0     | 0     | 0     | 0     | 0     | 37    | 0     | 0     | 0        | 0        | 0        | 37     | 0         | 0     | 11    | 5     | 0     | 0     | 0     | 7     | -7    | 64    | 101   | 0     | 181    | 1         | 3     | 3     | -7    | 3     | 13    | 12    | 832   | 118   | 216   | 179   | 1386  |        |   |
| 0         | 0     | 0     | 0     | 0     | 0     | 78    | 0     | 0     | 0        | 0        | 0        | 78     | 0         | 6     | 19    | 10    | 5     | 10    | -15   | 15    | 15    | 0     | 0     | 65    | 0      | 5         | 1     | -36   | 2     | 0     | 0     | 0     | -2    | 15    | 0     | 24    | 9     |        |   |
| 930       | 1410  | 1006  | 1072  | 1416  | 1286  | 1133  | 1512  | 1123  | 1326.77  | 1324.64  | 931.68   | 14472  | 1234      | 1019  | 881   | 1164  | 1124  | 1280  | 1553  | 1394  | 1583  | 1366  | 1097  | 859   | 14553  | 715       | 967   | 1003  | 1283  | 1466  | 1504  | 1665  | 1694  | 1069  | 1259  | 1527  | 4393  | 18545  |   |
| 278       | 1548  | 574   | 800   | 616   | 844   | 905   | 1487  | 1108  | 1006     | 815      | 821      | 10802  | 857       | 105   |       |       |       |       |       |       |       |       |       |       |        |           |       |       |       |       |       |       |       |       |       |       |       |        |   |



| 2023/2024 |       |       |       |       |       |       |        |       |       |       |       |        | 2024/2025 |       |       |       |       |       |       |       |       |       |       |       |        |
|-----------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|--------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Jul       | Aug   | Sept  | Oct   | Nov   | Dec   | Jan   | Febr   | Mar   | Apr   | May   | Jun   | Total  | Jul       | Aug   | Sept  | Oct   | Nov   | Dec   | Jan   | Febr  | Mar   | Apr   | May   | Jun   | Total  |
| 13        | 13    | -19   | 1     | 14    | -3    | 13    | 17     | 7     | 18    | 17    | 18    | 109    | 6         | 3     | 2     | 3     | 5     | 54    | 10    | 12    | 10    | 37    | 36    | 28    | 206    |
| 129       | 214   | 169   | 186   | 213   | 224   | 164   | 501    | 280   | 258   | 259   | 111   | 2706   | 294       | 128   | 305   | 160   | 264   | 245   | 289   | -49   | 339   | 362   | 314   | 310   | 2962   |
| 10703     | 10481 | 11089 | 12457 | 11255 | 12046 | 14163 | 13348  | 12559 | 15017 | 11458 | 11742 | 146319 | 10461     | 13124 | 9833  | 10923 | 14451 | 11556 | 13276 | 13926 | 13598 | 12641 | 13686 | 11737 | 149212 |
| 597       | 749   | 695   | 564   | -54   | 130   | 282   | 371    | 284   | 350   | 793   | -193  | 4569   | -264      | 186   | 11    | -11   | 421   | 146   | 113   | 324   | 374   | 335   | 443   | 443   | 2521   |
| 1754      | 1599  | 1577  | 1581  | 1918  | 1325  | 756   | 301    | 736   | 661   | 728   | 1566  | 14501  | -633      | 535   | 481   | 245   | 570   | 607   | 854   | 479   | 563   | 630   | 771   | 662   | 5765   |
| 12560     | 14007 | 14109 | 17861 | 14001 | 10329 | 17076 | 14905  | 14369 | 14585 | 11640 | 12795 | 168238 | 11903     | 9063  | 1548  | -4292 | 11558 | 13231 | 16717 | 18097 | 14904 | 13026 | 17485 | 11617 | 134857 |
| 9382      | 9981  | 9165  | 10777 | 9242  | 10743 | 11176 | 10253  | 11876 | 12087 | 10351 | 16671 | 131703 | 3255      | 9424  | 10200 | 9739  | 7529  | 5308  | 10060 | 2015  | 7810  | 13332 | 6543  | 6512  | 91729  |
| -130      | 1235  | 738   | 1368  | 1555  | 2299  | 1655  | 1764   | 1564  | 1776  | 1231  | 1151  | 16205  | 1364      | 1380  | 1600  | 1216  | 3320  | 1472  | 2290  | 2622  | 2308  | 1852  | 1852  | 1749  | 23024  |
| 21254     | 23166 | 26714 | 27603 | 25858 | 32785 | 36516 | 29574  | 31194 | 31180 | 27276 | 28693 | 341812 | 23159     | 25417 | 26013 | 22524 | 37983 | 26877 | 32036 | 34934 | 33932 | 30762 | 33602 | 27614 | 354853 |
|           |       |       |       |       |       |       |        |       |       |       |       | 0      |           |       |       |       |       |       |       |       |       |       |       |       | 0      |
| 21        | 123   | 37    | 93    | 110   | 64    | 142   | 110    | 133   | 123   | 74    | 94    | 1123   | 105       | 46    | 87    | 84    | 97    | 198   | 138   | 157   | 154   | 117   | 133   | 111   | 1426   |
| 106       | 171   | 269   | 184   | 181   | 405   | 138   | -157   | -150  | 415   | 145   | 78    | 1783   | 120       | 169   | 108   | 345   | 329   | 298   | 393   | 297   | 261   | 261   | 274   | 228   | 3082   |
| 5397      | 5411  | 5110  | 5292  | 5519  | 7543  | 8749  | 6690   | 7540  | 8160  | 5916  | 5644  | 76970  | 7631      | 5384  | 5218  | 6023  | 6831  | 6734  | 7484  | 7770  | 9018  | 6383  | 8849  | 7015  | 84340  |
| 256       | 512   | 795   | 598   | 653   | 680   | 289   | 80     | 117   | 275   | -66   | 98    | 4287   | 46        | 542   | 555   | 576   | 715   | 482   | 516   | 736   | 496   | 489   | 650   | 590   | 6392   |
| 100       | 132   | 240   | 223   | 260   | 233   | 245   | 130    | 154   | 196   | 161   | 249   | 2323   | 43        | 119   | 121   | 162   | 274   | 242   | 330   | 227   | 277   | 224   | 364   | 364   | 2747   |
| 2009      | 2759  | 2543  | 2765  | 4111  | 3864  | 5158  | 4393   | 3784  | 4237  | 3491  | 3400  | 42513  | 2957      | 2835  | 2227  | 3328  | 4123  | 5511  | 5197  | 5435  | 4785  | 3846  | 4236  | 3169  | 47649  |
| 30991     | 37580 | 33227 | 32198 | 38670 | 36390 | 33445 | 38189  | 38298 | 47801 | 39419 | 31920 | 438127 | 19567     | 32516 | 31118 | 27683 | 41862 | 40870 | 37652 | 53764 | 42228 | 57959 | 34258 | 34103 | 453578 |
| 4492      | 6067  | 4230  | 6677  | 13683 | 4758  | 7480  | 8899   | 7401  | 8540  | 7019  | 7498  | 86743  | 5805      | 5183  | 5061  | 6207  | 7939  | 9502  | 13896 | 11032 | 9178  | 7184  | 6649  | 6336  | 93972  |
| 18452     | 12132 | 18388 | 22910 | 17717 | 18985 | 20996 | 21417  | 21000 | 22879 | 21468 | 31047 | 247390 | 27700     | 27699 | 28822 | 29117 | 39459 | 37048 | 38946 | 32533 | 38644 | 22859 | 34444 | 34636 | 391907 |
| 58926     | 54746 | 55085 | 57828 | 64582 | 77088 | 95896 | 91758  | 79591 | 79308 | 70334 | 70054 | 855196 | 53909     | 59143 | 60625 | 61856 | 78665 | 81661 | 82556 | 88497 | 88987 | 80292 | 78479 | 63496 | 878165 |
| 6121      | 4507  | 7181  | 6552  | 6655  | 6371  | 6576  | 6938   | 4934  | 7746  | 5846  | 6365  | 75792  | 5284      | 4777  | 5076  | 4640  | 7082  | 7928  | 4911  | 5787  | 5933  | 5214  | 5318  | 5153  | 67104  |
| 468       | 289   | 602   | 492   | 588   | 626   | 702   | 621    | 548   | 929   | 466   | 808   | 7139   | 370       | 452   | 418   | 432   | 787   | 621   | 908   | 735   | 587   | 617   | 354   | 361   | 6642   |
| 169       | 100   | 143   | 127   | 201   | 598   | 254   | 368    | 373   | 202   | 182   | 241   | 2958   | 1844      | 1687  | 1352  | 1166  | 1769  | 1525  | 888   | 1526  | 1313  | 1437  | 996   | 992   | 16495  |
| 690       | 931   | 1736  | 2054  | 2515  | 3880  | 3890  | 4946   | 4606  | 4765  | 1650  | 2549  | 34212  | 1964      | 2104  | 1997  | 2503  | 3970  | 5114  | 3589  | 5853  | 6071  | 3938  | 2184  | 2184  | 41470  |
| 22728     | 29702 | 31880 | 31242 | 33815 | 38032 | 45484 | 41848  | 35720 | 38398 | 34944 | 33749 | 417541 | 26458     | 29288 | 29198 | 25991 | 47656 | 36703 | 42092 | 47019 | 41164 | 38371 | 37493 | 33081 | 434512 |
| 150       | 173   | 170   | 163   | 164   | 182   | 156   | 144    | 175   | 303   | 193   | 168   | 2141   | 136       | 149   | 125   | 229   | 187   | 135   | 173   | 226   | 191   | 163   | 203   | 203   | 2120   |
| 34        | 18    | 18    | 2     | 2     | 13    | 40    | -61    | 0     | 0     | 1     | -1    | 66     | 12        | -12   | 1     | 0     | 0     | 2     | -1    | 1     | 0     | 0     | 1     | 1     | 5      |
| 1000      | 1048  | 1330  | 896   | 1182  | 1616  | 1837  | 1838   | 1369  | 1430  | 1232  | 1726  | 16505  | 352       | 938   | 961   | 1310  | 1455  | 1198  | 1954  | 2128  | 1980  | 988   | 1544  | 1225  | 16033  |
| 1214      | 1259  | 1113  | 1139  | 988   | 1116  | 1640  | 1821   | 2061  | 1315  | 1701  | 1761  | 17128  | 2909      | 668   | 531   | 785   | 1150  | 857   | 1014  | 1306  | 1598  | 1111  | 530   | 803   | 13262  |
| 395       | 322   | 309   | 373   | 363   | 441   | 462   | 364    | 316   | 429   | 633   | 746   | 5153   | 737       | 176   | 0     | 0     | 0     | 0     | 1     | 0     | 429   | -429  | 0     | 0     | 914    |
| 507       | 521   | 287   | 799   | 556   | 672   | 1949  | 526    | 1034  | -294  | 356   | 415   | 7328   | 203       | 690   | 60    | 754   | 799   | 665   | 628   | 858   | 717   | 761   | 699   | 842   | 7677   |
| 12062     | 14542 | 16591 | 17175 | 17744 | 23819 | 25061 | 27474  | 19567 | 20775 | 18595 | 17874 | 231279 | 14273     | 14966 | 14831 | 12648 | 28185 | 21292 | 25357 | 27886 | 25358 | 23231 | 27519 | 17354 | 252900 |
| 1493      | 1134  | 1391  | 1328  | 1379  | 1355  | 740   | 1450   | 1506  | 4083  | -4842 | 1421  | 12439  | 1351      | 1144  | 1309  | 1317  | 1539  | 636   | 1676  | 1139  | 2438  | 1408  | 1239  | 1043  | 16238  |
| 1656      | 1637  | 2006  | 1803  | 1579  | 1840  | 2207  | 2046   | 2946  | 1323  | 2751  | 2198  | 23992  | 1579      | 2597  | 1536  | 1780  | 2027  | 1710  | 1084  | 1062  | 2466  | 1767  | 1907  | 1893  | 21408  |
| 10564     | 4910  | 9504  | 9504  | 10085 | 12459 | 12182 | 12210  | 11730 | 14641 | 10449 | 9822  | 128061 | 8279      | 8934  | 8668  | 10746 | 12631 | 11109 | 12131 | 12135 | 13477 | 14695 | 9618  | 8581  | 131004 |
| 7         | 10    | 13    | 14    | 15    | 24    | 8     | 18     | 14    | 16    | 14    | 13    | 166    | 7         | 13    | 2     | 0     | 4     | 9     | 4     | 18    | 22    | 18    | 51    | 27    | 175    |
| 199       | 426   | 307   | 188   | 218   | 430   | 376   | 2586   | 468   | 502   | 453   | 258   | 6410   | 195       | 188   | 0     | -12   | 31    | 497   | 592   | 474   | 228   | 217   | 234   | 210   | 2855   |
| 4352      | 2569  | 3428  | 3653  | 3565  | 4333  | 6120  | 7114   | 2569  | 5526  | 4671  | 4127  | 52026  | 3846      | 4635  | 1120  | -1316 | 2600  | 3055  | 4275  | 4420  | 3143  | 3323  | 4068  | 3177  | 36346  |
| 1383      | 617   | 728   | 624   | 657   | 1040  | 611   | 794    | 416   | 932   | 763   | 795   | 9360   | 517       | 1087  | 1140  | 1303  | 2546  | 1402  | 1646  | 1081  | 1423  | 2157  | 1377  | 1156  | 16835  |
| 1314      | 3275  | 4829  | 3381  | 3910  | 4105  | 3014  | 5455   | 3954  | 4112  | 4202  | 4365  | 45916  | 2457      | 4077  | 3734  | 3621  | 4508  | 3719  | 3673  | 3366  | 5185  | 3512  | 2179  | 3007  | 43038  |
| 35719     | 37777 | 41209 | 35519 | 41231 | 47696 | 40820 | 47636  | 38196 | 44798 | 40474 | 47785 | 498859 | 35713     | 44158 | 40909 | 42928 | 49203 | 43008 | 50859 | 48248 | 48899 | 44063 | 47615 | 43426 | 539031 |
| 895       | 1034  | 1408  | 1048  | 1326  | 1877  | 1572  | 1530   | 1056  | 1241  | 1227  | 1073  | 15288  | 800       | 2080  | 1171  | 1129  | 1416  | 1265  | 2889  | 1064  | 1108  | 1640  | 1518  | 1505  | 17585  |
| 3934      | -2596 | 1276  | 735   | -7657 | 2492  | 3394  | -10357 | 1662  | 1200  | 682   | 1390  | -3844  | 969       | -596  | 694   | 1369  | 1663  | 1352  | 2186  | 1304  | 1384  | 1190  | 581   | 720   | 12815  |
| 14586     | 12190 | 18187 | 15115 | 25862 | 33170 | 33787 | 24343  | 25325 | 23801 | 18833 | 18639 | 263838 | 14013     | 16417 | 16975 | 18403 | 30906 | 23624 | 35718 | 26988 | 28202 | 24856 | 23055 | 16908 | 276064 |

|        |        |        |        |        |        |        |        |        |        |        |        |         |        |        |        |        |        |        |        |        |        |        |        |        |         |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 2009   | 2759   | 2543   | 2765   | 4111   | 3864   | 5158   | 4393   | 3784   | 4237   | 3491   | 3400   | 42513   | 2957   | 2835   | 2227   | 3328   | 4123   | 5511   | 5197   | 5435   | 4785   | 3846   | 4236   | 3169   | 47649   |
| 256    | 512    | 795    | 598    | 653    | 680    | 289    | 80     | 117    | 275    | -66    | 98     | 4287    | 46     | 542    | 555    | 576    | 715    | 482    | 516    | 736    | 496    | 489    | 650    | 590    | 6392    |
| 100    | 132    | 240    | 223    | 260    | 233    | 245    | 130    | 154    | 196    | 161    | 249    | 2323    | 43     | 119    | 121    | 162    | 274    | 242    | 330    | 227    | 277    | 224    | 364    | 364    | 2747    |
| 2365   | 3403   | 3578   | 3585   | 5024   | 4777   | 5691   | 4602   | 4055   | 4708   | 3586   | 3747   | 49123   | 3047   | 3496   | 2904   | 4066   | 5112   | 6235   | 6042   | 6397   | 5558   | 4559   | 5250   | 4123   | 56788   |
| 21254  | 23166  | 26714  | 27603  | 25858  | 32785  | 36516  | 29574  | 31194  | 31180  | 27276  | 28693  | 341812  | 23159  | 25417  | 26013  | 22524  | 37983  | 26877  | 32036  | 34934  | 33932  | 30762  | 33602  | 27614  | 354853  |
| 9382   | 9981   | 9165   | 10777  | 9242   | 10743  | 11176  | 10253  | 11876  | 12087  | 10351  | 16671  | 131703  | 3255   | 9424   | 10200  | 9739   | 7529   | 5308   | 10060  | 2015   | 7810   | 13332  | 6543   | 6512   | 91729   |
| -130   | 1235   | 738    | 1368   | 1555   | 2299   | 1655   | 1764   | 1564   | 1776   | 1231   | 1151   | 16205   | 1364   | 1380   | 1600   | 1216   | 3320   | 1472   | 2290   | 2622   | 2308   | 1852   | 1852   | 1749   | 23024   |
| 30505  | 34382  | 36618  | 39747  | 36655  | 45827  | 49346  | 41591  | 44634  | 45042  | 38858  | 46515  | 489721  | 27778  | 36221  | 37813  | 33480  | 48832  | 33657  | 44386  | 39571  | 44051  | 45946  | 41998  | 35875  | 469606  |
| 10564  | 4910   | 9504   | 9504   | 10085  | 12459  | 12182  | 12210  | 11730  | 14641  | 10449  | 9822   | 128061  | 8279   | 8934   | 8668   | 10746  | 12631  | 11109  | 12131  | 12135  | 13477  | 14695  | 9618   | 8581   | 131004  |
| 1493   | 1134   | 1391   | 1328   | 1379   | 1355   | 740    | 1450   | 1506   | 4083   | -4842  | 1421   | 12439   | 1351   | 1144   | 1309   | 1317   | 1539   | 636    | 1676   | 1139   | 2438   | 1408   | 1239   | 1043   | 16238   |
| 1656   | 1637   | 2006   | 1803   | 1579   | 1840   | 2207   | 2046   | 2946   | 1323   | 2751   | 2198   | 23992   | 1579   | 2597   | 1536   | 1780   | 2027   | 1710   | 1084   | 1062   | 2466   | 1767   | 1907   | 1893   | 21408   |
| 13713  | 7681   | 12900  | 12635  | 13044  | 15654  | 15129  | 15707  | 16182  | 20048  | 8358   | 13441  | 164492  | 11208  | 12674  | 11513  | 13843  | 16197  | 13455  | 14891  | 14337  | 18381  | 17870  | 12764  | 11517  | 186650  |
| 12062  | 14542  | 16591  | 17175  | 17744  | 23819  | 25061  | 27474  | 19567  | 20775  | 18595  | 17874  | 231479  | 14273  | 14966  | 14831  | 12648  | 28185  | 21292  | 25357  | 27886  | 25358  | 23231  | 27519  | 17354  | 252900  |
| 1214   | 1259   | 1113   | 1139   | 988    | 1116   | 1640   | 1821   | 2061   | 1315   | 1701   | 1761   | 17128   | 2909   | 668    | 531    | 785    | 1150   | 857    | 1014   | 1306   | 1598   | 1111   | 530    | 803    | 13262   |
| 507    | 521    | 287    | 799    | 556    | 672    | 1949   | 526    | 1034   | -294   | 356    | 415    | 7328    | 203    | 690    | 60     | 754    | 799    | 665    | 628    | 858    | 717    | 761    | 699    | 842    | 7677    |
| 395    | 322    | 309    | 373    | 363    | 441    | 462    | 364    | 316    | 429    | 633    | 746    | 5153    | 737    | 176    | 0      | 0      | 0      | 0      | 1      | 0      | 429    | -429   | 0      | 0      | 914     |
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| 14586  | 12190  | 18187  | 15115  | 25862  | 31700  | 33787  | 24343  | 25325  | 23801  | 18833  | 18639  | 263838  | 14013  | 16417  | 16975  | 18403  | 30906  | 23242  | 35718  | 26988  | 28202  | 24856  | 23055  | 16908  | 276064  |
| 895    | 1034   | 1408   | 1048   | 1326   | 1877   | 1572   | 1530   | 1056   | 1241   | 1227   | 1073   | 15288   | 800    | 2080   | 1171   | 1129   | 1416   | 1265   | 2889   | 1064   | 1108   | 1640   | 1518   | 1505   | 17585   |
| 3934   | -2596  | 1276   | 735    | -7657  | 2492   | 3394   | -10357 | 1662   | 1200   | 682    | 1390   | -3844   | 969    | -596   | 694    | 1369   | 1663   | 1352   | 2186   | 1304   | 1384   | 1190   | 581    | 720    | 12815   |
| 19415  | 10628  | 20871  | 16899  | 19531  | 37540  | 38753  | 15517  | 28042  | 26242  | 20743  | 21102  | 275283  | 15782  | 17901  | 18840  | 20901  | 33985  | 26242  | 40793  | 29356  | 30693  | 27686  | 25153  | 19132  | 306464  |
| 22728  | 29702  | 31880  | 31242  | 33815  | 38032  | 45484  | 41848  | 35720  | 38398  | 34944  | 33749  | 417541  | 26458  | 29288  | 29198  | 25991  | 47656  | 36703  | 42092  | 47019  | 41164  | 38371  | 37493  | 33081  | 434512  |
| 6121   | 4507   | 7181   | 6552   | 6655   | 6371   | 6576   | 6938   | 4934   | 7746   | 5846   | 6365   | 75792   | 5284   | 4777   | 5076   | 4640   | 7082   | 7928   | 4911   | 5787   | 5933   | 5214   | 5318   | 5153   | 67104   |
| 169    | 100    | 143    | 127    | 201    | 598    | 254    | 368    | 373    | 202    | 182    | 241    | 2958    | 1844   | 1687   | 1352   | 1166   | 1769   | 1525   | 888    | 1526   | 1313   | 1437   | 996    | 992    | 16495   |
| 690    | 931    | 1736   | 2054   | 2515   | 3880   | 3890   | 4946   | 4606   | 4765   | 1650   | 2549   | 34212   | 1964   | 2104   | 1997   | 2503   | 3970   | 5114   | 3589   | 5853   | 6071   | 3938   | 2184   | 2184   | 41470   |
| 468    | 289    | 602    | 492    | 588    | 626    | 702    | 621    | 548    | 929    | 466    | 808    | 7139    | 370    | 452    | 418    | 432    | 787    | 621    | 908    | 735    | 587    | 617    | 354    | 361    | 6642    |
| 30176  | 35529  | 41542  | 40467  | 43774  | 49507  | 56907  | 54721  | 46180  | 52040  | 43089  | 43711  | 537642  | 35919  | 38309  | 38040  | 34732  | 61263  | 51891  | 52388  | 60920  | 55067  | 49578  | 46346  | 41771  | 566223  |
| 1000   | 1048   | 1330   | 896    | 1182   | 1616   | 1837   | 1838   | 1369   | 1430   | 1232   | 1726   | 16505   | 352    | 938    | 961    | 1310   | 1455   | 1198   | 1954   | 2128   | 1980   | 988    | 1544   | 1225   | 16033   |
| 150    | 173    | 170    | 163    | 164    | 182    | 156    | 144    | 175    | 303    | 193    | 168    | 2141    | 136    | 149    | 125    | 229    | 187    | 135    | 173    | 226    | 191    | 163    | 203    | 203    | 2120    |
| 34     | 18     | 18     | 2      | 3      | 13     | 40     | -61    | 0      | 0      | 1      | -66    | 12      | -12    | 1      | 0      | 0      | 0      | -1     | 1      | 0      | 0      | 1      | 1      | 5      |         |
| 1184   | 1239   | 1518   | 1061   | 1348   | 1811   | 2033   | 1921   | 1544   | 1733   | 1426   | 1894   | 18712   | 499    | 1076   | 1087   | 1539   | 1642   | 1335   | 2126   | 2355   | 2171   | 1151   | 1748   | 1429   | 18158   |
| 127658 | 124991 | 130031 | 132611 | 140153 | 159034 | 182824 | 181451 | 154823 | 167394 | 144493 | 152147 | 1797609 | 123464 | 135508 | 119252 | 116121 | 163308 | 159245 | 175166 | 180958 | 178549 | 159729 | 170183 | 140467 | 1821950 |
| 32999  | 39079  | 34699  | 33493  | 39397  | 37648  | 34489  | 39483  | 39145  | 49222  | 41063  | 32629  | 453345  | 19932  | 33848  | 32358  | 29060  | 44930  | 42624  | 39533  | 55344  | 44200  | 60586  | 36262  | 35840  | 474536  |
| 21954  | 17816  | 25537  | 28430  | 24157  | 25475  | 25443  | 30101  | 26287  | 28827  | 27254  | 37424  | 318706  | 30133  | 32796  | 33450  | 33475  | 45163  | 42414  | 44746  | 37100  | 45220  | 27841  | 38216  | 39053  | 449609  |
| 4505   | 6080   | 4211   | 6678   | 13697  | 4755   | 7493   | 8915   | 7409   | 8558   | 7036   | 7516   | 86852   | 5810   | 5186   | 5063   | 6210   | 7943   | 9556   | 13906  | 11044  | 9188   | 7221   | 6685   | 6364   | 94178   |
| 187115 | 187967 | 194478 | 201212 | 217405 | 226911 | 250249 | 259950 | 227663 | 254001 | 219845 | 229715 | 2656511 | 179339 | 207338 | 190124 | 184866 | 261344 | 253839 | 273371 | 284447 | 277158 | 255378 | 251346 | 221725 | 2840273 |

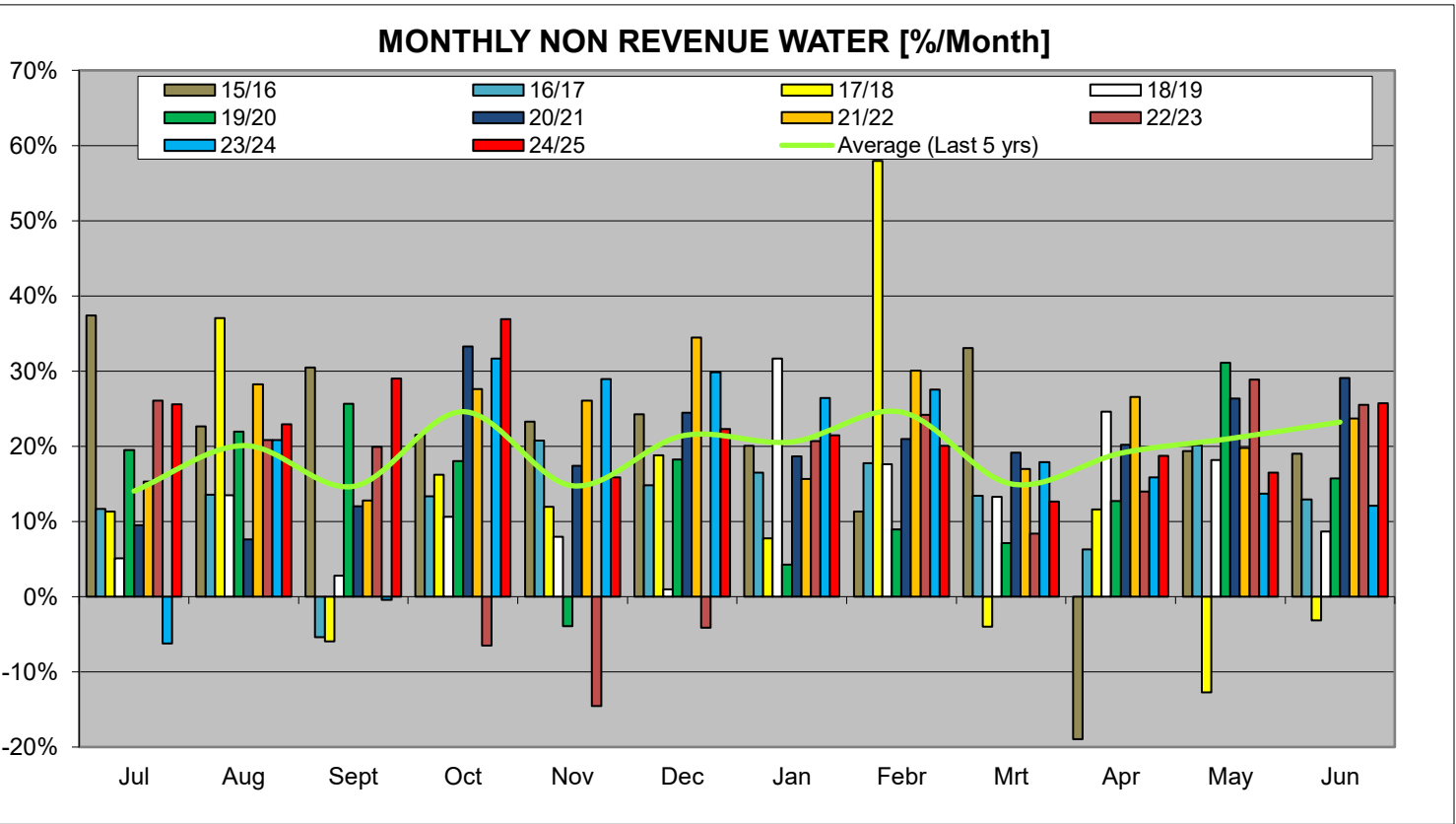
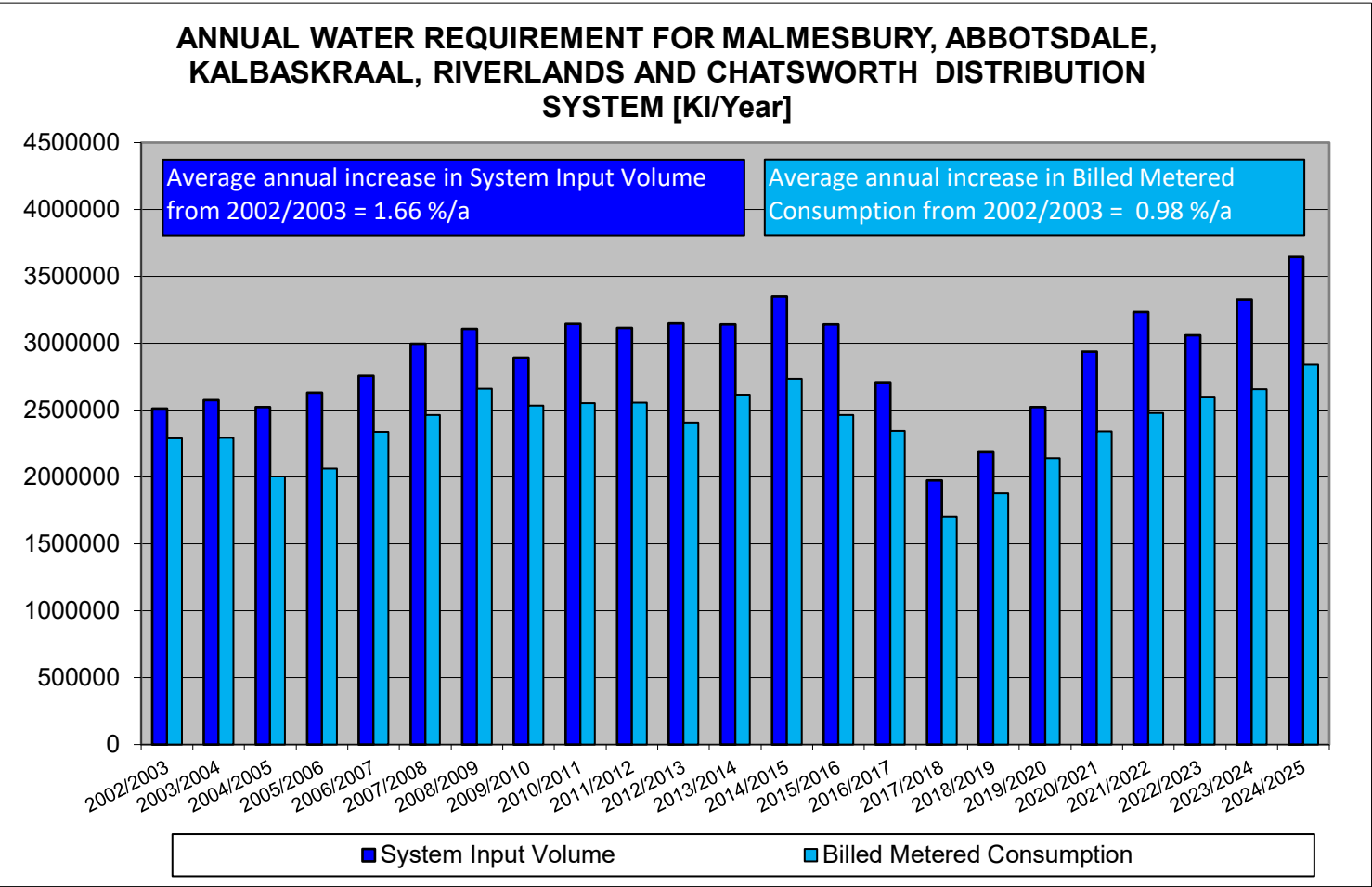
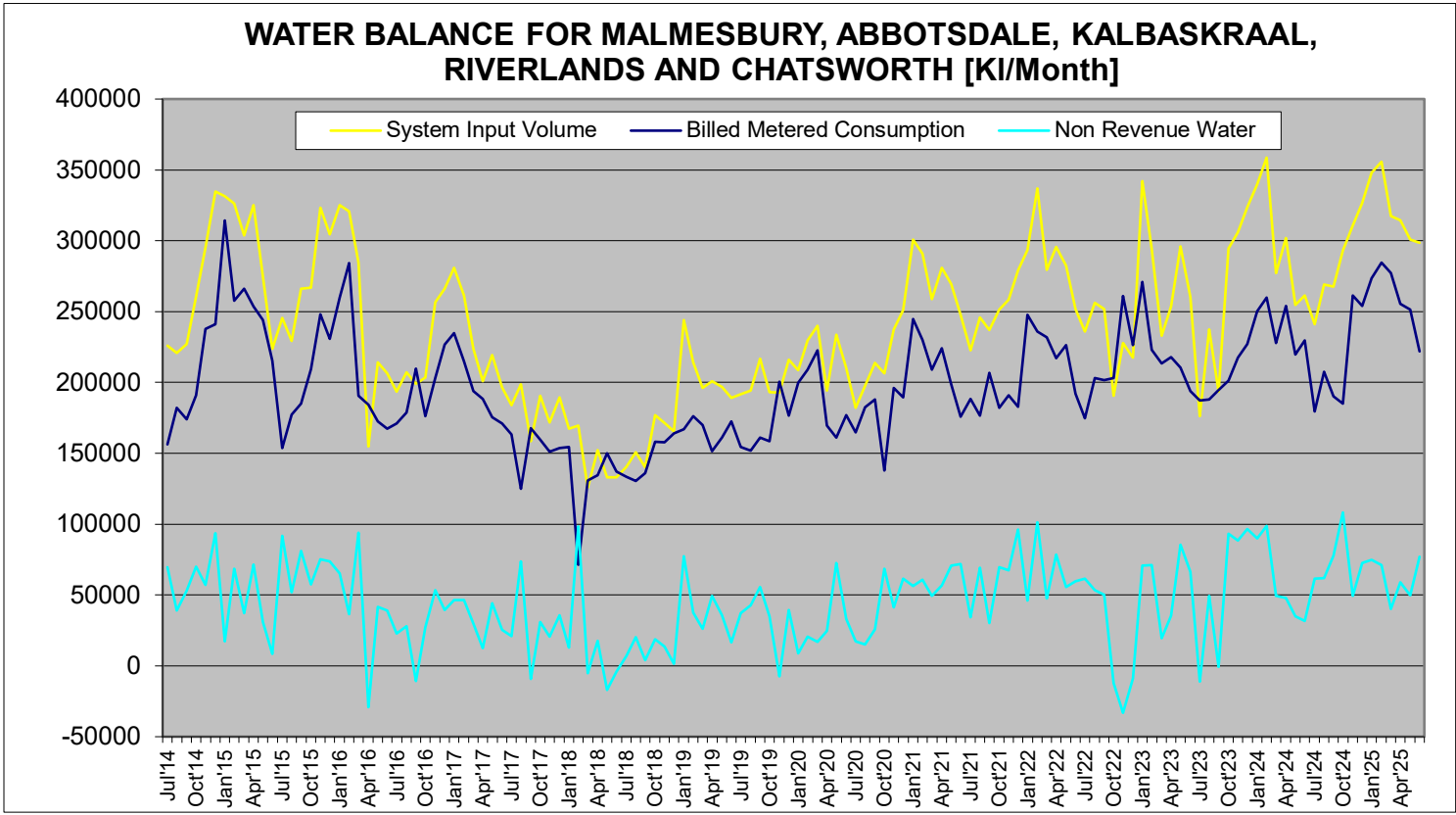


| SWARTLAND MUNICIPALITY                                       |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Malmesbury, Abbottsdale, Kalbaskraai, Riverlands, Chatsworth |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TREATED WATER SUPPLY                                         |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Month                                                        | Year  | System Input Volume |                |        |        | Revenue Water              |                               |             |             | Non Revenue Water (NRW) |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                              |       | Boreholes           | Paardeberg Dam | WCDM   | Total  | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW              | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses   |                   |                       |                                  | Real Losses | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                              |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 | Legal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |             |                      |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                              |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     | Estimated Percentages (Variables) |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                              |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     | 2%                                | 10% | 5% | 83% |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| [m³]                                                         | [m³]  | [m³]                | [m³]           | [m³]   | [m³]   | [m³]                       | [m³]                          | [m³]        | [m³]        | [m³]                    | [m³]       | [m³]                         | [m³]                            | [m³]              | [m³]              | [m³]                  | [m³]                             | [m³]        | [m³]                 |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Jan'01                                                       | 00/01 |                     |                | 276500 | 276500 |                            |                               |             |             |                         |            |                              |                                 |                   |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

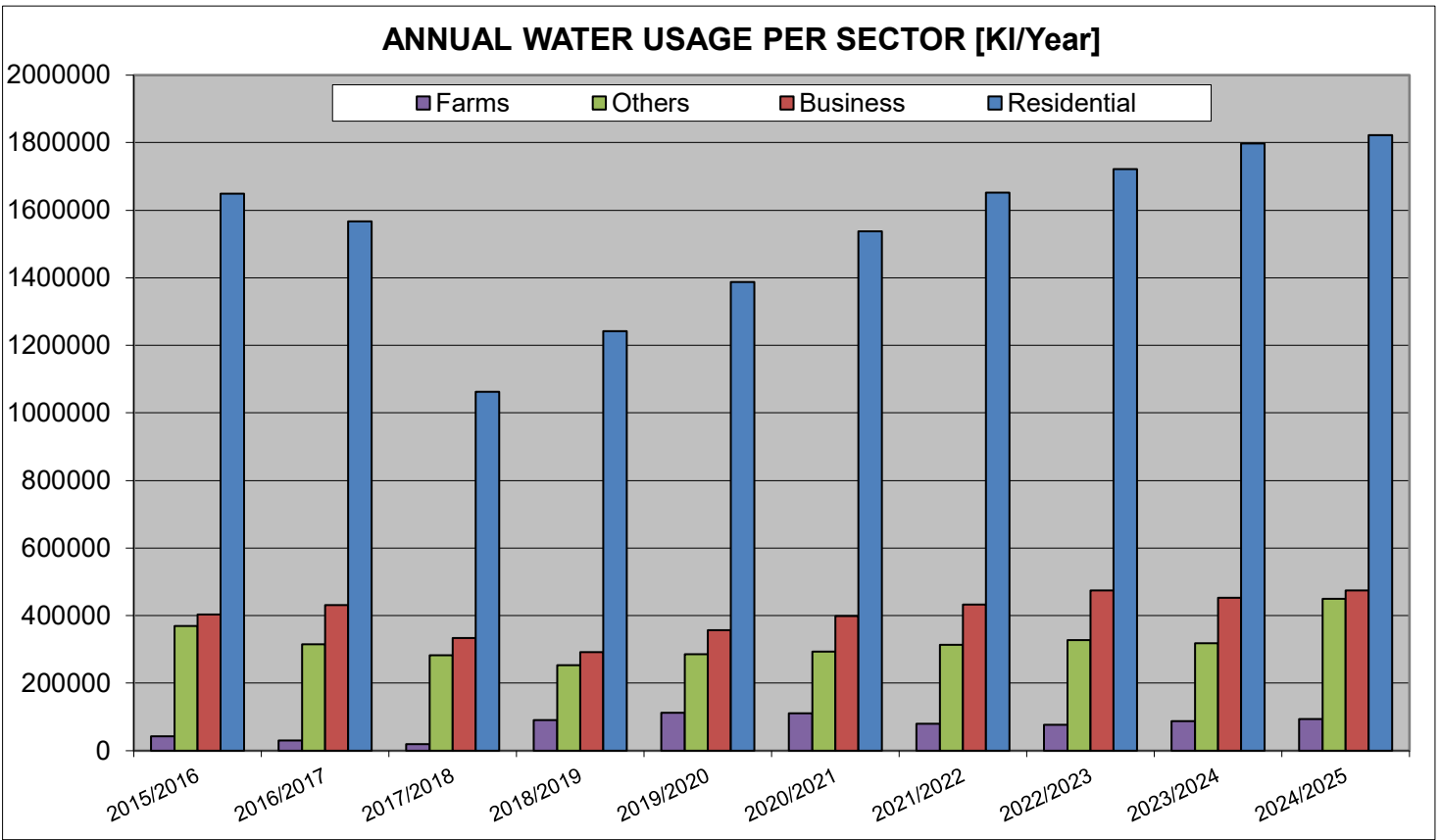
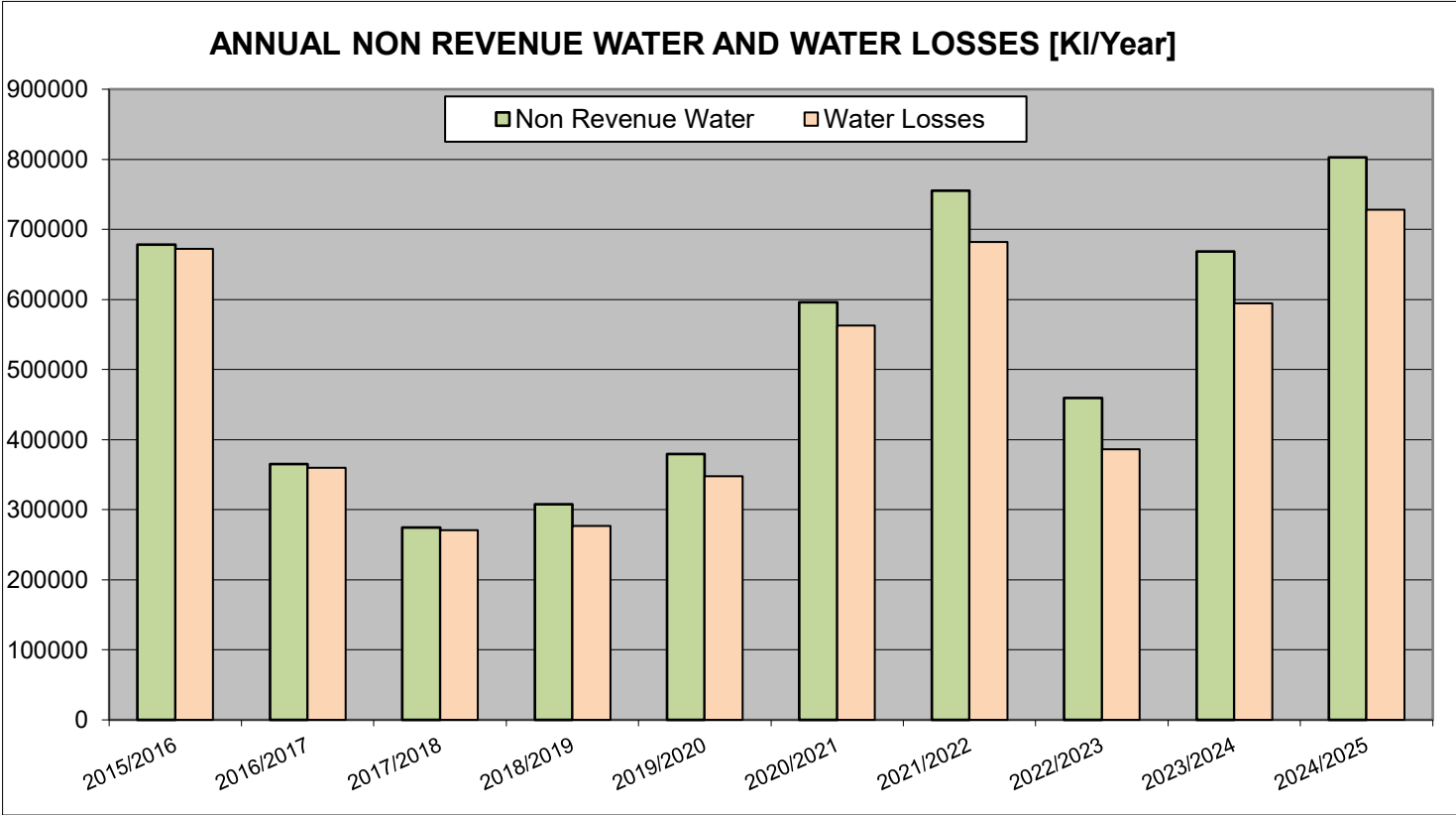
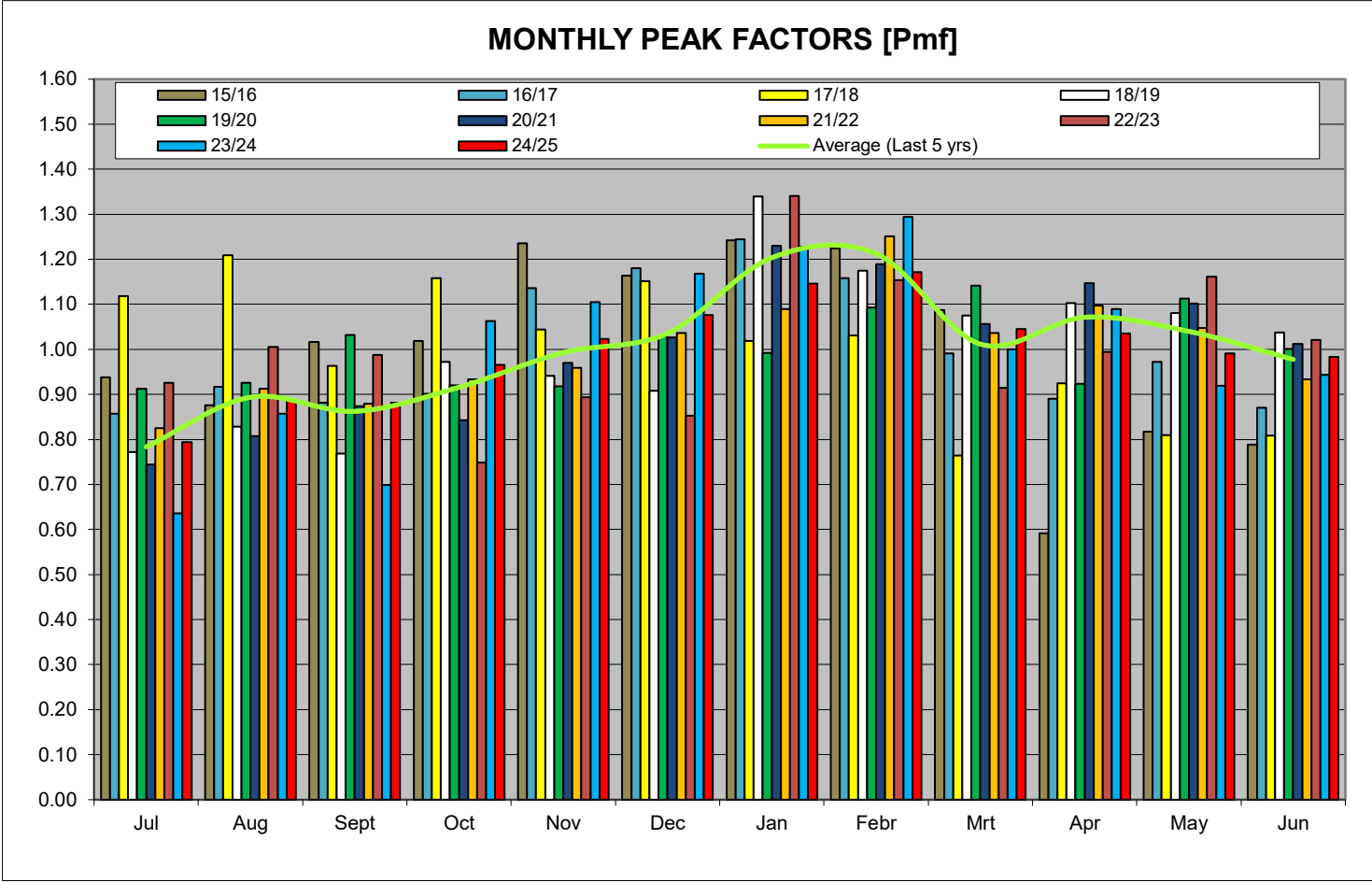


| SWARTLAND MUNICIPALITY                                       |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |
|--------------------------------------------------------------|-------|---------------------|----------------|--------|--------|----------------------------|-------------------------------|-------------|-------------|-------------------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------|-------------|----------------------|----------------------|---------------------|---------------------|-----------------------------------|-----|----|-----|
| Malmesbury, Abbottsdale, Kalbaskraai, Riverlands, Chatsworth |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |
| TREATED WATER SUPPLY                                         |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |
| Month                                                        | Year  | System Input Volume |                |        |        | Revenue Water              |                               |             |             | Non Revenue Water (NRW) |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |
|                                                              |       | Boreholes           | Paardeberg Dam | WCDM   | Total  | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW              | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       |                                  | Real Losses | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                                   |     |    |     |
|                                                              |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |             |                      |                      |                     |                     |                                   |     |    |     |
|                                                              |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     | Estimated Percentages (Variables) |     |    |     |
|                                                              |       |                     |                |        |        |                            |                               |             |             |                         |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     | 2%                                | 10% | 5% | 83% |
| [m³]                                                         | [m³]  | [m³]                | [m³]           | [m³]   | [m³]   | [m³]                       | [%]                           | [m³]        | [%]         | [m³]                    | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]                  | [m³]                             | [m³]        | [%]                  |                      |                     |                     |                                   |     |    |     |
| Jul'16                                                       | 16/17 | 1769                | 18             | 191774 | 193561 | 170925                     | 0                             | 22636       | 11.7%       | 354912                  | 13.5%      | 0                            | 387                             | 445                 | 2225              | 1112                  | 18467                            | 22249       | 11.5%                | 359494               | 13.3%               |                     |                                   |     |    |     |
| Aug'16                                                       |       | 1581                | 7              | 205440 | 207028 | 178915                     | 0                             | 28113       | 13.6%       |                         |            | 0                            | 414                             | 554                 | 2770              | 1385                  | 22990                            | 27699       | 13.4%                |                      |                     |                     |                                   |     |    |     |
| Sep'16                                                       |       | 2388                | 36             | 196680 | 199084 | 209825                     | 0                             | -10741      | -5.4%       |                         |            | 0                            | 398                             | -223                | -1114             | -557                  | -9246                            | -11139      | -5.6%                |                      |                     |                     |                                   |     |    |     |
| Oct'16                                                       |       | 1348                | 14             | 202055 | 203417 | 176307                     | 0                             | 27210       | 13.4%       |                         |            | 0                            | 407                             | 536                 | 2680              | 1340                  | 22247                            | 26803       | 13.2%                |                      |                     |                     |                                   |     |    |     |
| Nov'16                                                       |       | 0                   | 0              | 256386 | 256386 | 203125                     | 0                             | 53261       | 20.8%       |                         |            | 0                            | 513                             | 1055                | 5275              | 2637                  | 43781                            | 52748       | 20.6%                |                      |                     |                     |                                   |     |    |     |
| Dec'16                                                       |       | 1                   | 10             | 266305 | 266316 | 226966                     | 0                             | 39450       | 14.8%       |                         |            | 0                            | 533                             | 778                 | 3892              | 1946                  | 32301                            | 38917       | 14.6%                |                      |                     |                     |                                   |     |    |     |
| Jan'17                                                       |       | 2775                | 12             | 278219 | 281006 | 234719                     | 0                             | 46267       | 16.5%       |                         |            | 0                            | 562                             | 914                 | 4572              | 2286                  | 37852                            | 45725       | 16.3%                |                      |                     |                     |                                   |     |    |     |
| Feb'17                                                       |       | 4338                | 7              | 266972 | 267117 | 214847                     | 0                             | 46470       | 17.5%       |                         |            | 0                            | 523                             | 919                 | 4585              | 2297                  | 38156                            | 45847       | 17.6%                |                      |                     |                     |                                   |     |    |     |
| Mar'17                                                       |       | 5280                | 1              | 218466 | 223747 | 193781                     | 0                             | 29966       | 13.4%       |                         |            | 0                            | 447                             | 590                 | 2952              | 1476                  | 24500                            | 29519       | 13.2%                |                      |                     |                     |                                   |     |    |     |
| Apr'17                                                       |       | 2454                | 3              | 198494 | 200951 | 188305                     | 0                             | 12646       | 6.3%        |                         |            | 0                            | 402                             | 245                 | 1224              | 612                   | 10163                            | 12244       | 6.1%                 |                      |                     |                     |                                   |     |    |     |
| May'17                                                       |       | 4218                | 4              | 215263 | 219485 | 175272                     | 0                             | 44213       | 20.1%       |                         |            | 0                            | 439                             | 875                 | 4377              | 2189                  | 36332                            | 43774       | 19.9%                |                      |                     |                     |                                   |     |    |     |
| Jun'17                                                       |       | 4745                | 2              | 191839 | 196586 | 171185                     | 0                             | 25401       | 12.9%       |                         |            | 0                            | 393                             | 500                 | 2501              | 1250                  | 20756                            | 25008       | 12.7%                |                      |                     |                     |                                   |     |    |     |
| Jul'17                                                       | 17/18 | 3995                | 0              | 179940 | 183935 | 163138                     | 0                             | 20797       | 11.3%       | 274831                  | 13.0%      | 0                            | 368                             | 409                 | 2043              | 1021                  | 16956                            | 20429       | 11.1%                | 270884               | 13.7%               |                     |                                   |     |    |     |
| Aug'17                                                       |       | 2848                | 0              | 195956 | 198804 | 125106                     | 0                             | 73698       | 37.1%       |                         |            | 0                            | 398                             | 1466                | 7330              | 3665                  | 60839                            | 73300       | 36.9%                |                      |                     |                     |                                   |     |    |     |
| Sep'17                                                       |       | 738                 | 9              | 157035 | 158367 | 167618                     | 0                             | 9436        | 4.0%        |                         |            | 0                            | 317                             | -195                | -975              | -488                  | -8095                            | -9753       | -4.2%                |                      |                     |                     |                                   |     |    |     |
| Oct'17                                                       |       | 358                 | 5              | 190038 | 190401 | 159502                     | 0                             | 30899       | 16.2%       |                         |            | 0                            | 381                             | 610                 | 3052              | 1526                  | 25330                            | 30519       | 16.0%                |                      |                     |                     |                                   |     |    |     |
| Nov'17                                                       |       | 1009                | 4              | 170627 | 171640 | 151153                     | 0                             | 20487       | 11.9%       |                         |            | 0                            | 343                             | 403                 | 2014              | 1007                  | 16719                            | 20144       | 11.7%                |                      |                     |                     |                                   |     |    |     |
| Dec'17                                                       |       | 4318                | 3              | 185070 | 189391 | 153775                     | 0                             | 35616       | 18.8%       |                         |            | 0                            | 379                             | 705                 | 3524              | 1762                  | 26247                            | 35237       | 18.6%                |                      |                     |                     |                                   |     |    |     |
| Jan'18                                                       |       | 2617                | 4              | 164837 | 167458 | 154471                     | 0                             | 12687       | 7.8%        |                         |            | 0                            | 335                             | 253                 | 1265              | 633                   | 10501                            | 12652       | 7.6%                 |                      |                     |                     |                                   |     |    |     |
| Feb'18                                                       |       | 2856                | 2              | 166736 | 166994 | 171314                     | 0                             | 98280       | 58.0%       |                         |            | 0                            | 339                             | 1959                | 9794              | 4897                  | 81291                            | 97941       | 57.8%                |                      |                     |                     |                                   |     |    |     |
| Mar'18                                                       |       | 6551                | 3              | 119205 | 125759 | 130791                     | 0                             | -5032       | -4.0%       |                         |            | 0                            | 252                             | -106                | -528              | -264                  | -4385                            | -5284       | -4.2%                |                      |                     |                     |                                   |     |    |     |
| Apr'18                                                       |       | 5242                | 0              | 146825 | 152067 | 134432                     | 0                             | 17635       | 11.6%       |                         |            | 0                            | 344                             | 867                 | 1733              | 14385                 | 17331                            | 11.4%       |                      |                      |                     |                     |                                   |     |    |     |
| May'18                                                       |       | 111                 | 2              | 132937 | 133050 | 149972                     | 0                             | -16922      | -12.7%      |                         |            | 0                            | 266                             | -344                | -1719             | -859                  | -14266                           | -17188      | -12.9%               |                      |                     |                     |                                   |     |    |     |
| Jun'18                                                       |       | 1757                | 0              | 131283 | 133040 | 137218                     | 0                             | -4178       | -3.1%       |                         |            | 0                            | 266                             | -89                 | -444              | -222                  | -3689                            | -4444       | -3.3%                |                      |                     |                     |                                   |     |    |     |
| Jul'18                                                       | 18/19 | 3004                | 10             | 137557 | 140571 | 133453                     | 0                             | 7118        | 5.1%        | 308070                  | 14.1%      | 0                            | 2525                            | 92                  | 459               | 230                   | 3812                             | 4593        | 3.3%                 | 276769               | 12.7%               |                     |                                   |     |    |     |
| Aug'18                                                       |       | 3566                | 1              | 147361 | 150928 | 133553                     | 0                             | 20375       | 13.5%       |                         |            | 0                            | 2546                            | 357                 | 1783              | 891                   | 14798                            | 17829       | 11.8%                |                      |                     |                     |                                   |     |    |     |
| Sep'18                                                       |       | 3145                | 47             | 136761 | 139953 | 136020                     | 0                             | 3933        | 2.8%        |                         |            | 0                            | 2524                            | 28                  | 141               | 70                    | 1170                             | 1409        | 1.0%                 |                      |                     |                     |                                   |     |    |     |
| Oct'18                                                       |       | 5340                | 14             | 171700 | 177054 | 158197                     | 0                             | 18857       | 10.7%       |                         |            | 0                            | 2598                            | 325                 | 1626              | 813                   | 13495                            | 16259       | 9.2%                 |                      |                     |                     |                                   |     |    |     |
| Nov'18                                                       |       | 7209                | 26             | 164238 | 167438 | 157835                     | 0                             | 22136       | 13.5%       |                         |            | 0                            | 2587                            | 221                 | 1105              | 553                   | 9172                             | 11051       | 6.4%                 |                      |                     |                     |                                   |     |    |     |
| Dec'18                                                       |       | 4345                | 9              | 181150 | 186504 | 163916                     | 0                             | 1589        | 1.0%        |                         |            | 0                            | 2575                            | -30                 | -99               | -49                   | -819                             | -287        | -0.8%                |                      |                     |                     |                                   |     |    |     |
| Jan'19                                                       |       | 4372                | 7              | 239785 | 244164 | 166906                     | 0                             | 77258       | 31.6%       |                         |            | 0                            | 2732                            | 1491                | 7453              | 3726                  | 61856                            | 74526       | 30.5%                |                      |                     |                     |                                   |     |    |     |
| Feb'19                                                       |       | 4075                | 10             | 209953 | 214038 | 176318                     | 0                             | 37720       | 17.6%       |                         |            | 0                            | 2672                            | 701                 | 3505              | 1752                  | 29000                            | 35048       | 16.4%                |                      |                     |                     |                                   |     |    |     |
| Mar'19                                                       |       | 3741                | 0              | 192187 | 196928 | 169494                     | 0                             | 26264       | 13.3%       |                         |            | 0                            | 2636                            | 499                 | 2343              | 1171                  | 19445                            | 23428       | 12.0%                |                      |                     |                     |                                   |     |    |     |
| Apr'19                                                       |       | 1726                | 0              | 199118 | 200844 | 151472                     | 0                             | 49372       | 24.6%       |                         |            | 0                            | 2546                            | 935                 | 4673              | 2336                  | 38783                            | 46726       | 23.3%                |                      |                     |                     |                                   |     |    |     |
| May'19                                                       |       | 3886                | 3              | 192976 | 196865 | 161161                     | 0                             | 35704       | 18.1%       |                         |            | 0                            | 2638                            | 661                 | 3307              | 1653                  | 27445                            | 33066       | 16.8%                |                      |                     |                     |                                   |     |    |     |
| Jun'19                                                       |       | 1443                | 4              | 187867 | 189114 | 172671                     | 0                             | 16443       | 8.7%        |                         |            | 0                            | 2622                            | 276                 | 1382              | 691                   | 11471                            | 13821       | 7.3%                 |                      |                     |                     |                                   |     |    |     |
| Jul'19                                                       | 19/20 | 1550                | 19             | 190024 | 191578 | 154257                     | 0                             | 37321       | 19.5%       | 379300                  | 15.0%      | 0                            | 2672                            | 684                 | 3469              | 1735                  | 26766                            | 34694       | 18.1%                | 347331               | 13.8%               |                     |                                   |     |    |     |
| Aug'19                                                       |       | 2687                | 0              | 191668 | 194355 | 151732                     | 0                             | 42623       | 21.9%       |                         |            | 0                            | 2633                            | 800                 | 3999              | 2000                  | 33192                            | 39990       | 20.6%                |                      |                     |                     |                                   |     |    |     |
| Sep'19                                                       |       | 2974                | 0              | 213875 | 216849 | 181175                     | 0                             | 55674       | 25.7%       |                         |            | 0                            | 2680                            | 1060                | 5300              | 2650                  | 43987                            | 52996       | 24.4%                |                      |                     |                     |                                   |     |    |     |
| Oct'19                                                       |       | 833                 | 0              | 192387 | 193220 | 158410                     | 0                             | 34810       | 18.0%       |                         |            | 0                            | 2630                            | 644                 | 3218              | 1609                  | 26709                            | 32180       | 16.7%                |                      |                     |                     |                                   |     |    |     |
| Nov'19                                                       |       | 2019                | 26             | 190980 | 193025 | 200474                     | 0                             | 7549        | 3.9%        |                         |            | 0                            | 2630                            | -204                | -1018             | -509                  | -4448                            | -1019       | -5.3%                |                      |                     |                     |                                   |     |    |     |
| Dec'19                                                       |       | 2060                | 14             | 213881 | 215955 | 176506                     | 0                             | 39449       | 18.3%       |                         |            | 0                            | 2676                            | 735                 | 3677              | 1839                  | 30522                            | 36773       | 17.0%                |                      |                     |                     |                                   |     |    |     |
| Jan'20                                                       |       | 1879                | 19             | 206607 | 208505 | 199673                     | 0                             | 8632        | 4.2%        |                         |            | 0                            | 2661                            | 123                 | 617               | 309                   | 5122                             | 6171        | 3.0%                 |                      |                     |                     |                                   |     |    |     |
| Feb'20                                                       |       | 1274                | 8              | 228263 | 229565 | 209002                     | 0                             | 20563       | 9.2%        |                         |            | 0                            | 2703                            | 357                 | 1786              | 893                   | 14624                            | 17860       | 7.8%                 |                      |                     |                     |                                   |     |    |     |
| Mar'20                                                       |       | 2723                | 2              | 237099 | 238924 | 222792                     | 0                             | 17032       | 7.1%        |                         |            | 0                            | 2726                            | 286                 | 1431              | 715                   | 11876                            | 14308       | 6.0%                 |                      |                     |                     |                                   |     |    |     |
| Apr'20                                                       |       | 2376                | 0              | 191693 | 194069 | 169381                     | 0                             | 24688       | 12.7%       |                         |            | 0                            | 2632                            | 441                 | 2206              | 1103                  | 18306                            | 22056       | 11.4%                |                      |                     |                     |                                   |     |    |     |
| May'20                                                       |       | 2313                | 0              | 231408 | 233721 | 160973                     | 0                             | 72748       | 31.1%       |                         |            | 0                            | 2711                            | 1401                | 7004              | 3502                  | 58130                            | 70037       | 30.0%                |                      |                     |                     |                                   |     |    |     |
| Jun'20                                                       |       | 2137                | 0              | 208053 | 210184 | 177075                     | 0                             | 32104       | 15.4%       |                         |            | 0                            | 2664                            | 309                 | 1522              | 765                   | 26766                            | 30924       | 18.1%                |                      |                     |                     |                                   |     |    |     |
| Jul'20                                                       | 20/21 | 2454                | 3              | 179542 | 181999 | 164763                     | 0                             | 27236       | 9.5%        | 595795                  | 20.3%      | 0                            | 2608                            | 293                 | 1463              | 731                   | 12141                            | 14628       | 8.0%                 | 562994               | 19.2%               |                     |                                   |     |    |     |
| Aug'20                                                       |       | 1897                | 0              | 195618 | 197515 | 182416                     | 0                             | 15099       | 7.6%        |                         |            | 0                            | 2639                            | 249                 | 1246              | 623                   | 10341                            | 12460       | 6.3%                 |                      |                     |                     |                                   |     |    |     |
| Sep'20                                                       |       | 1743                | 0              | 212136 | 213879 | 188101                     | 0                             | 25778       | 12.1%       |                         |            | 0                            | 2672                            | 462                 | 2311              | 1155                  | 19178                            | 23107       | 10.8%                |                      |                     |                     |                                   |     |    |     |
| Oct'20                                                       |       | 844                 | 0              | 205458 | 206300 | 173985                     | 0                             | 32815       | 16.2%       |                         |            | 0                            | 2657                            | 1319                | 6596              | 3298                  | 54745                            | 65968       | 32.9%                |                      |                     |                     |                                   |     |    |     |
| Nov'20                                                       |       | 341                 | 0              | 236884 | 237225 | 195925                     | 0                             | 41300       | 17.4%       |                         |            | 0                            | 2718                            | 772                 | 3858              | 1929                  | 32023                            | 38582       | 16.3%                |                      |                     |                     |                                   |     |    |     |
| Dec'20                                                       |       | 3153                | 0              | 247916 | 251069 | 189637                     | 0                             | 61432       | 24.5%       |                         |            | 0                            | 2746                            | 1174                | 5869              | 2934                  | 48709                            | 58686       | 23.4%                |                      |                     |                     |                                   |     |    |     |
| Jan'21                                                       |       | 4405                | 0              | 236791 | 244772 | 182033                     | 0                             | 18713       | 8.1%        |                         |            | 0                            | 2676                            | 536                 | 2688              | 1326                  | 53466                            | 62688       | 26.8%                |                      |                     |                     |                                   |     |    |     |
| Feb'21                                                       |       | 2856                | 2              | 287972 | 290830 | 229910                     | 0                             | 60920       | 25.9%       |                         |            | 0                            | 2826                            | 1162                | 5809              | 2905                  | 48128                            | 58094       | 20.0%                |                      |                     |                     |                                   |     |    |     |
| Mar'21                                                       |       | 2627                | 3              | 256620 | 256590 | 209052                     | 0                             | 49538       | 19.2%       |                         |            | 0                            | 2761                            | 938                 | 4678              | 2399                  | 38825                            | 46777       | 18.1%                |                      |                     |                     |                                   |     |    |     |
| Apr'21                                                       |       | 2324                | 0              | 278427 | 280751 | 223990                     | 0                             | 56761       | 20.2%       |                         |            | 0                            | 2806                            | 1079                | 5396              | 2698                  | 44783                            | 53956       | 19.2%                |                      |                     |                     |                                   |     |    |     |
| May'21                                                       |       | 4500                | 26             | 244565 | 188536 | 188536                     | 0                             | 70820       | 29.3%       |                         |            | 0                            | 2563                            | 6814                | 3417              | 16653                 | 34173                            | 16.5%       |                      |                      |                     |                     |                                   |     |    |     |
| Jun'21                                                       |       | 1806                | 684            | 245275 | 247765 | 175771                     | 0                             | 71994       | 29.1%       |                         |            | 0                            | 2740                            | 1385                | 6925              | 3483                  | 57481                            | 69254       | 28.0%                |                      |                     |                     |                                   |     |    |     |
| Jul'21                                                       | 21/22 | 2774                | 15             | 219665 | 222454 | 188334                     | 0                             | 34120       | 15.3%       | 755496                  | 23.4%      | 0                            | 6055                            | 561                 | 2807              | 1403                  | 23284                            | 28065       | 12.6%                | 681709               | 21.1%               |                     |                                   |     |    |     |
| Aug'21                                                       |       | 1815                | 33             | 244025 | 245873 | 176506                     | 0                             | 60387       | 28.2%       |                         |            | 0                            | 6102                            | 1265                | 6327              | 3163                  | 52510                            | 62585       | 25.7%                |                      |                     |                     |                                   |     |    |     |
| Sep'21                                                       |       | 1954                | 42             | 236961 | 238984 | 202714                     | 0                             | 30274       | 12.8%       |                         |            | 0                            | 6084                            | 1219                | 6084              | 3174                  | 52495                            | 60841       | 23.5%                |                      |                     |                     |                                   |     |    |     |
| Oct'21                                                       |       | 2903                | 31             | 248548 | 251482 | 182021                     | 0                             | 69461       | 28.7%       |                         |            | 0                            | 6113                            | 1267                | 6335              | 3167                  | 52579                            | 63348       | 27.9%                |                      |                     |                     |                                   |     |    |     |
| Nov'21                                                       |       | 2013                | 32             | 256324 | 258369 | 201010                     | 0                             | 67355       | 26.1%       |                         |            | 0                            | 6127                            | 1225                | 6123              | 3081                  | 50819                            | 61228       | 23.7%                |                      |                     |                     |                                   |     |    |     |
| Dec'21                                                       |       | 4405                | 9              | 247455 | 182095 | 182095                     | 0                             | 96274       | 34.5%       |                         |            | 0                            | 6168                            | 1902                | 5455              | 2618                  | 90115                            | 147488      | 32.3%                |                      |                     |                     |                                   |     |    |     |
| Jan'22                                                       |       | 1963                | 34             | 261560 | 293557 | 191404                     | 0                             | 45957       | 19.6%       |                         |            | 0                            | 6197                            | 795                 | 3976              | 1998                  | 33001                            | 39760       | 13.5%                |                      |                     |                     |                                   |     |    |     |
| Feb'22                                                       |       | 4821                | 18             | 332224 | 337063 | 235751                     | 0                             | 101312      | 30.1%       |                         |            | 0                            | 6284                            | 1901                | 9503              | 4751                  | 78873                            | 95028       | 28.2%                |                      |                     |                     |                                   |     |    |     |
| Mar'22                                                       |       | 3000                | 30             | 276258 | 279288 | 231926                     | 0                             | 47362       | 17.0%       |                         |            | 0                            | 6169                            | 824                 | 4119              | 2060                  | 34190                            | 41163       | 14.7%                |                      |                     |                     |                                   |     |    |     |
| Apr'22                                                       |       | 2175                | 38             | 293337 | 295337 | 217111                     | 0                             | 76339       | 26.1%       |                         |            | 0                            | 6201                            | 3617                | 7234              | 3617                  | 7234                             | 3617        | 12.0%                |                      |                     |                     |                                   |     |    |     |
| May'22                                                       |       | 603                 | 26             | 281671 | 282300 | 226488                     | 0                             | 55812       | 19.8%       |                         |            | 0                            | 6175                            | 993                 | 4964              | 2482                  | 41199                            | 49638       | 17.6%                |                      |                     |                     |                                   |     |    |     |
| Jun'22                                                       |       | 0                   | 30             | 251563 | 251593 | 191931                     | 0                             | 59662       | 23.7%       |                         |            | 0                            | 6113                            | 1071                | 5355              | 2677                  | 44446                            | 53549       | 21.3%                |                      |                     |                     |                                   |     |    |     |
| Jul'22                                                       | 22/23 | 0                   | 335974         | 236004 | 174541 | 0                          | 61463                         | 26.0%       | 459396      | 15.0%                   | 0          | 6062                         | 1108                            | 5538                | 2769              | 49996                 | 55381                            | 23.5%       | 385917               | 12.6%                |                     |                     |                                   |     |    |     |
| Aug'22                                                       |       | 0                   | 296262         | 246318 |        |                            |                               |             |             |                         |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |     |    |     |

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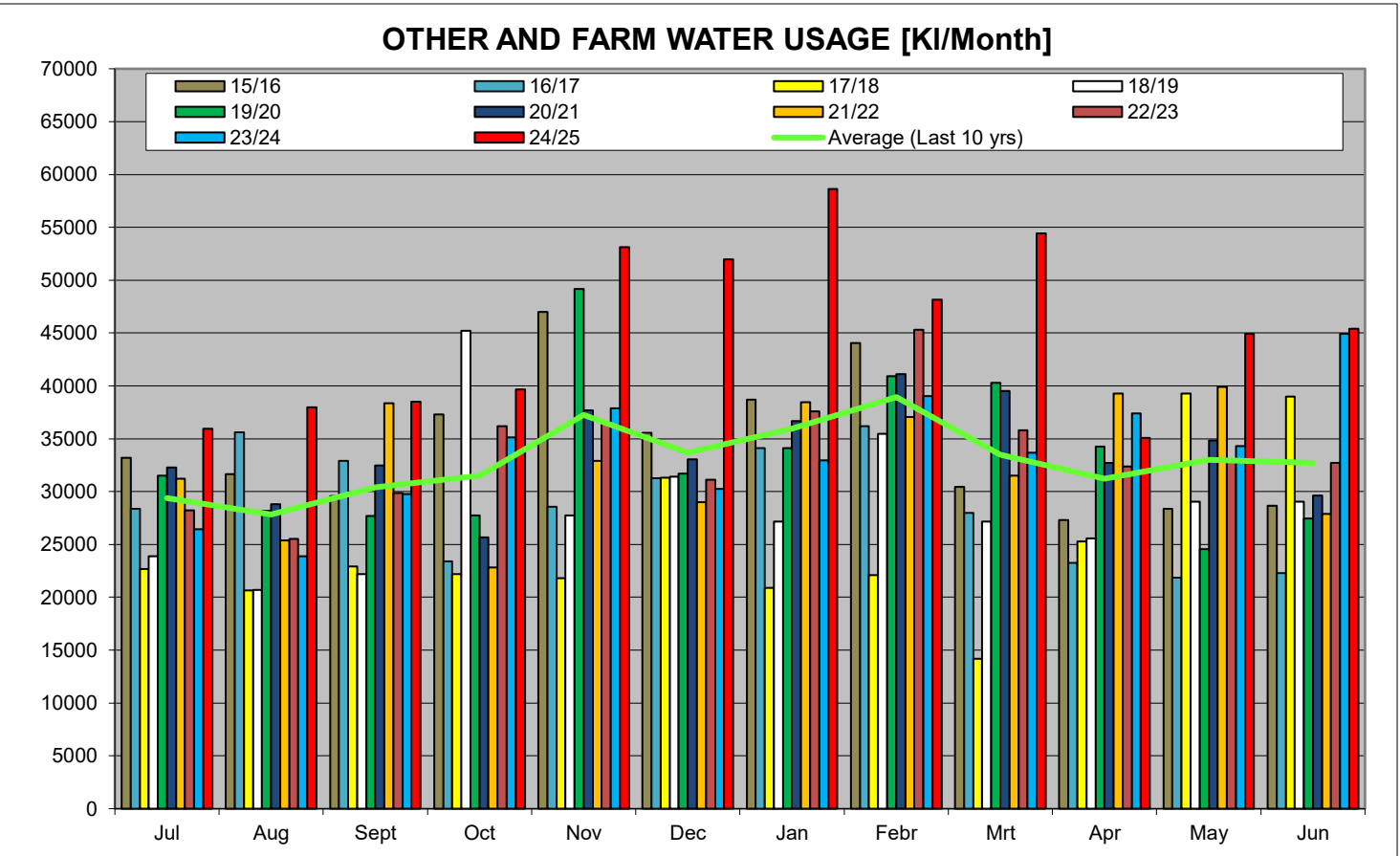
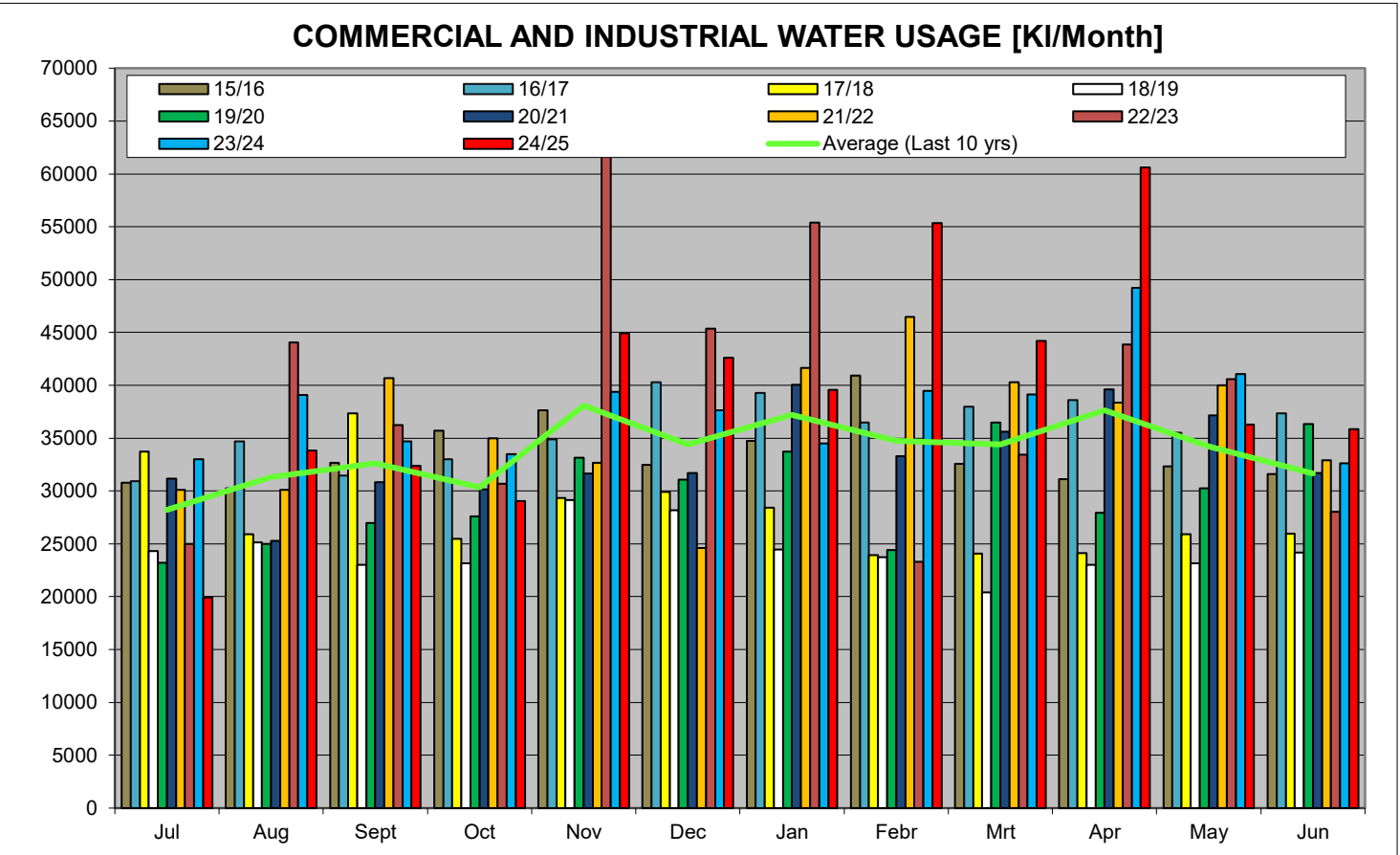
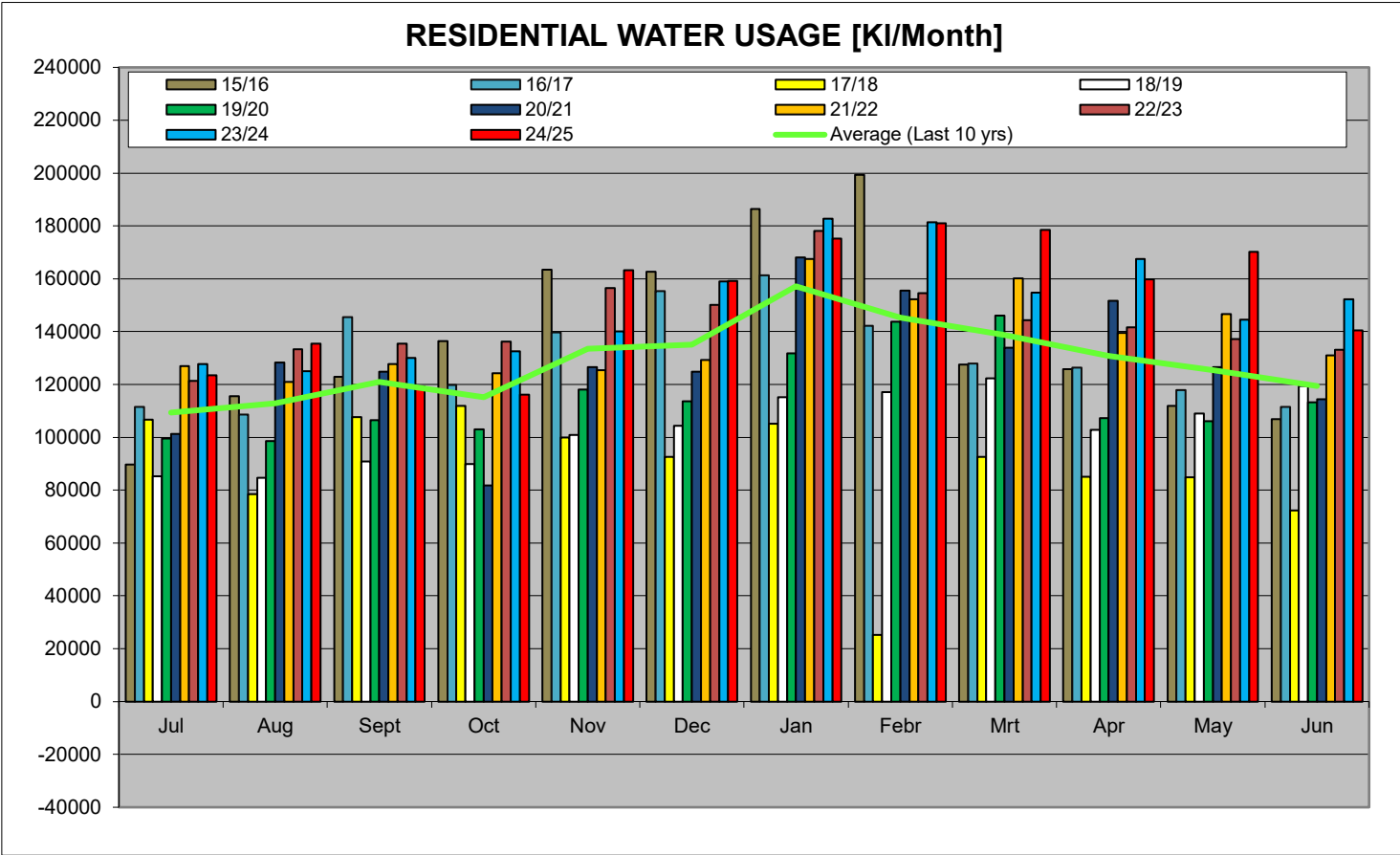


WATER BALANCE AND USAGE FOR MALMESBURY DISTRIBUTION SYSTEM





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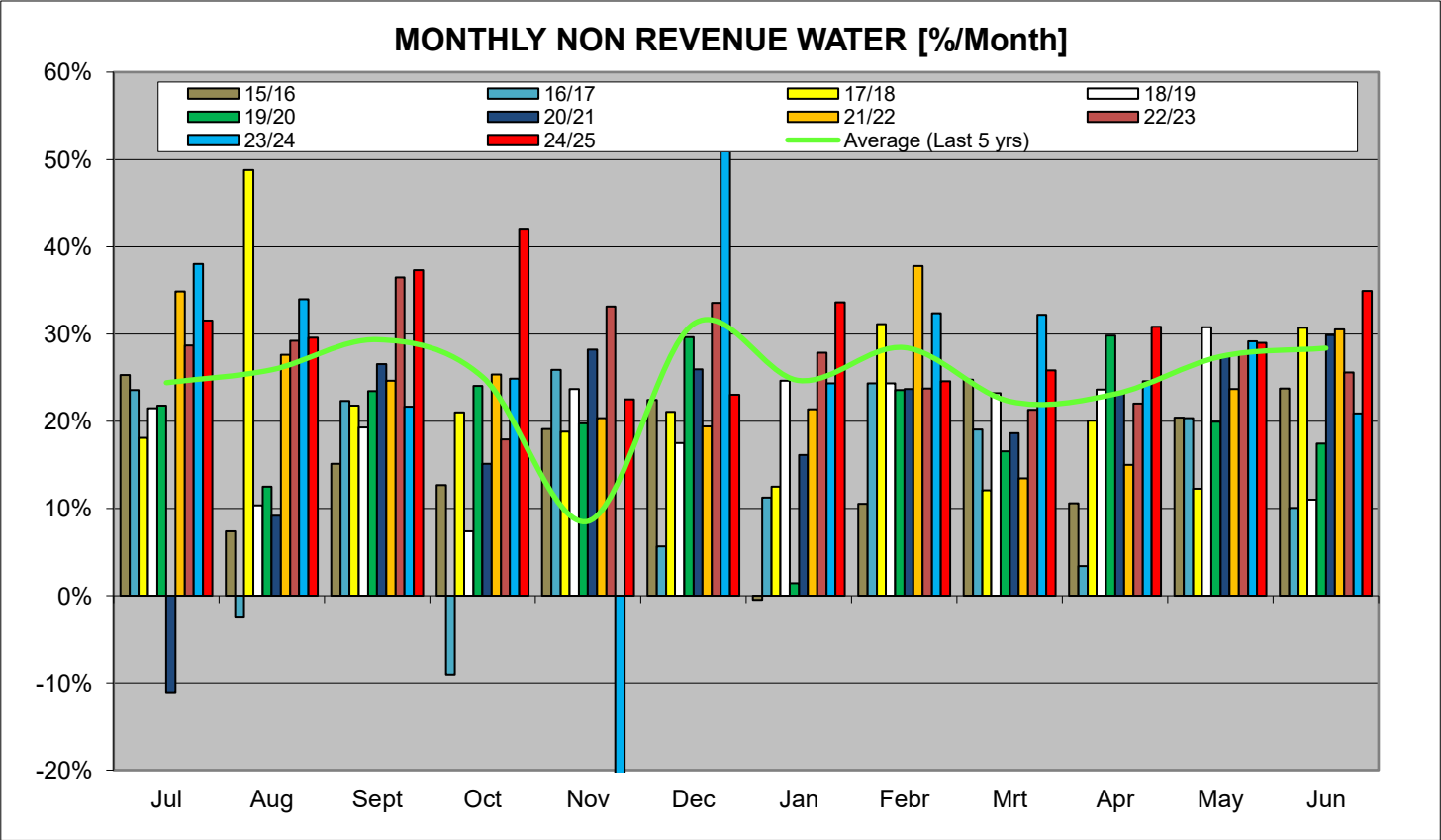
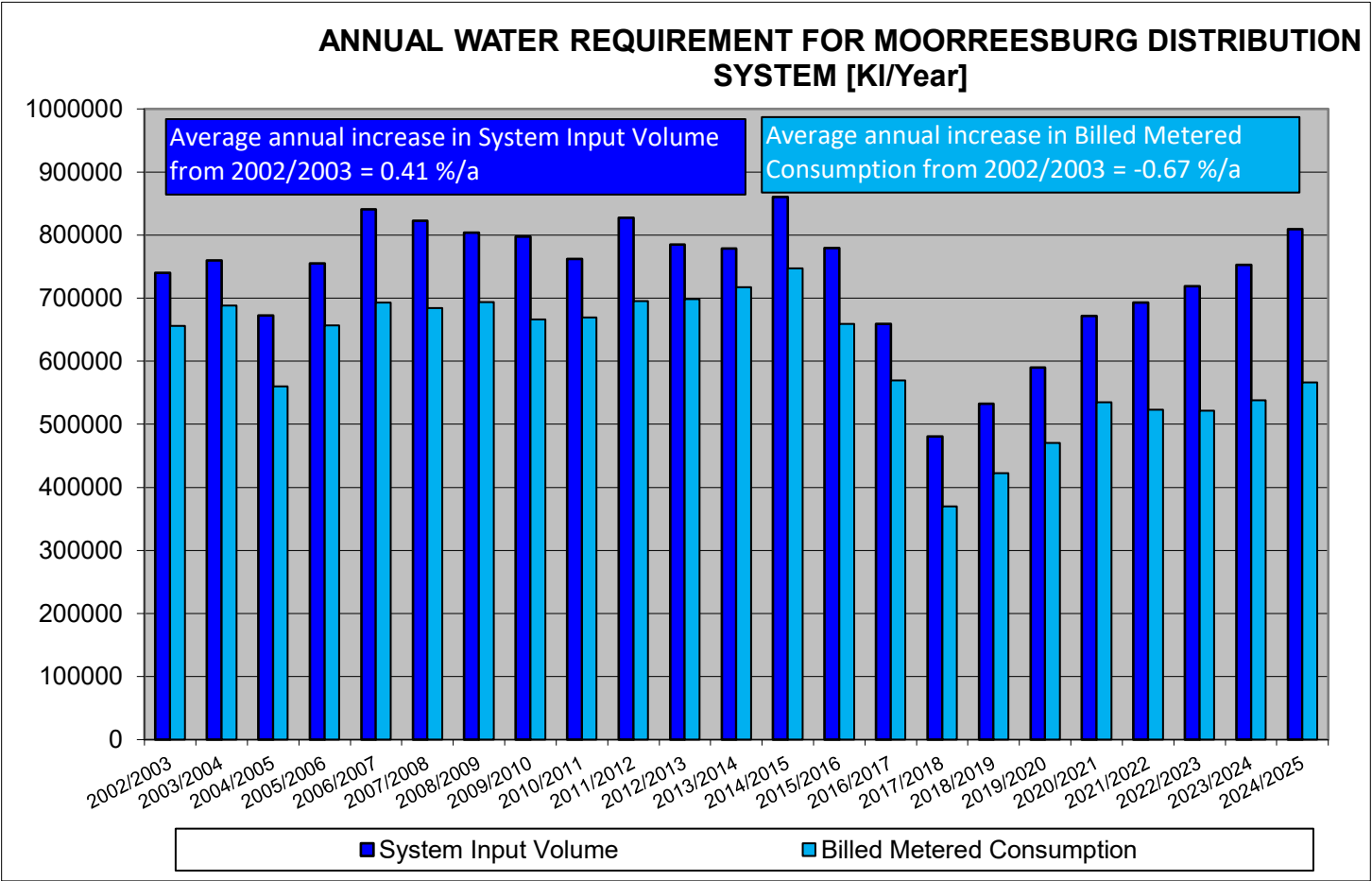
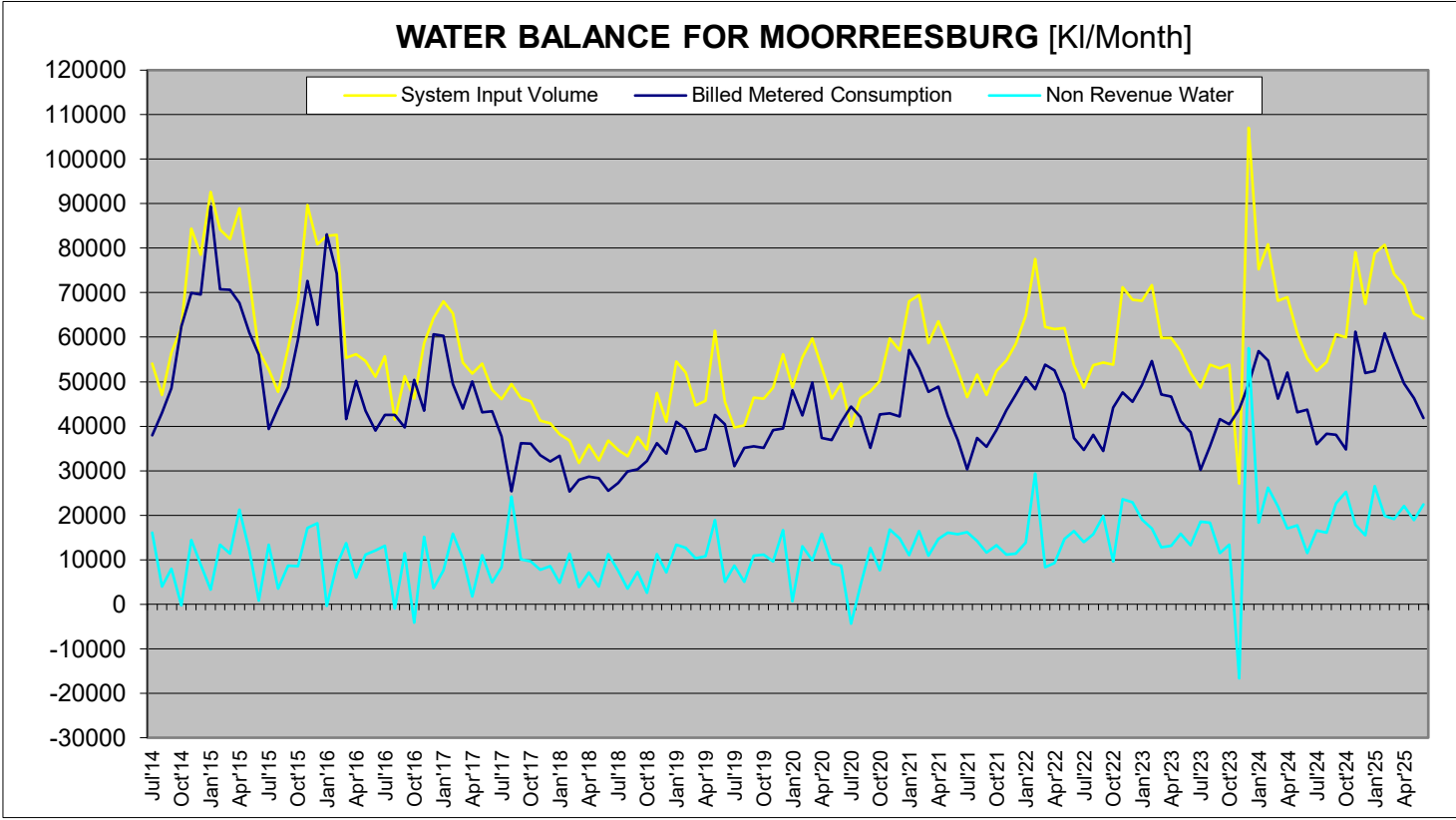


| SWARTLAND MUNICIPALITY |       |                     |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
|------------------------|-------|---------------------|------------------------|----------------------------|-------------------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|---------------------|-------------------|--------|----------------------------------|-----------------------|------|------|----------------------|----------------------|---------------------|---------------------|
| Moorreesburg           |       |                     |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| TREATED WATER SUPPLY   |       |                     |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Month                  | Year  | System Input Volume | Revenue Water          |                            | Non Revenue Water (NRW)       |             |             |            |            |                              |                                 |                     |                   |        | Real Losses                      |                       |      |      | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |        | Leaks, Reservoirs overflow, etc. |                       |      |      |                      |                      |                     |                     |
|                        |       |                     |                        |                            |                               |             |             |            |            |                              |                                 | Illegal Connections | Inaccurate Meters |        |                                  | Administrative Errors |      |      |                      |                      |                     |                     |
|                        |       |                     |                        |                            |                               |             |             |            |            |                              |                                 |                     | 2%                | 10%    |                                  |                       | 5%   |      |                      |                      |                     |                     |
|                        |       |                     | [m³]                   | [m³]                       | [m³]                          | [%]         | [m³]        | [%]        | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]   | [m³]                             | [m³]                  | [m³] | [m³] | [m³]                 |                      |                     |                     |
| Jan'01                 | 00/01 | 76360               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Feb'01                 |       | 62430               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Mrt'01                 |       | 72570               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Apr'01                 |       | 59610               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| May'01                 |       | 43860               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Jun'01                 | 01/02 | 31430               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Jul'01                 |       | 36190               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Aug'01                 |       | 38790               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Sep'01                 |       | 36440               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Oct'01                 |       | 41970               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Nov'01                 | 02/03 | 47390               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Dec'01                 |       | 67860               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Jan'02                 |       | 76150               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Feb'02                 |       | 61740               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Mrt'02                 |       | 80490               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Apr'02                 | 03/04 | 63630               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| May'02                 |       | 49880               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Jun'02                 |       | 44490               |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |        |                                  |                       |      |      |                      |                      |                     |                     |
| Jul'02                 |       | 43120               | 34012                  | 0                          | 9108                          | 21.1%       |             |            | 0          | 86                           | 180                             | 802                 | 451               | 7488   | 9022                             | 20.9%                 |      |      |                      |                      |                     |                     |
| Aug'02                 |       | 43980               | 27604                  | 0                          | 16176                         | 36.8%       |             |            | 0          | 88                           | 322                             | 1609                | 804               | 13353  | 16088                            | 36.6%                 |      |      |                      |                      |                     |                     |
| Sep'02                 | 04/05 | 43180               | 32993                  | 0                          | 10187                         | 23.6%       |             |            | 0          | 86                           | 202                             | 1010                | 505               | 8384   | 10101                            | 23.4%                 |      |      |                      |                      |                     |                     |
| Oct'02                 |       | 55080               | 45337                  | 0                          | 9743                          | 17.7%       |             |            | 0          | 110                          | 193                             | 963                 | 482               | 7995   | 9633                             | 17.5%                 |      |      |                      |                      |                     |                     |
| Nov'02                 |       | 56180               | 51542                  | 0                          | 6638                          | 11.8%       |             |            | 0          | 126                          | 160                             | 652                 | 326               | 5413   | 6522                             | 11.2%                 |      |      |                      |                      |                     |                     |
| Dec'02                 |       | 93800               | 79804                  | 0                          | 13997                         | 14.9%       |             |            | 0          | 188                          | 276                             | 1381                | 690               | 11461  | 13809                            | 14.7%                 |      |      |                      |                      |                     |                     |
| Jan'03                 |       | 85125               | 80412                  | 0                          | 4713                          | 5.5%        |             |            | 0          | 170                          | 91                              | 454                 | 227               | 3770   | 4543                             | 5.3%                  |      |      |                      |                      |                     |                     |
| Feb'03                 | 05/06 | 82234               | 70695                  | 0                          | 11540                         | 14.0%       |             |            | 0          | 164                          | 228                             | 1138                | 569               | 9441   | 11375                            | 13.8%                 |      |      |                      |                      |                     |                     |
| Mrt'03                 |       | 67800               | 76633                  | 0                          | -7833                         | -11.6%      |             |            | 0          | 136                          | -159                            | -707                | -398              | -6614  | -7969                            | -11.8%                |      |      |                      |                      |                     |                     |
| Apr'03                 |       | 71970               | 59757                  | 0                          | 12214                         | 17.0%       |             |            | 0          | 144                          | 241                             | 1207                | 603               | 10018  | 12070                            | 16.8%                 |      |      |                      |                      |                     |                     |
| May'03                 |       | 33240               | 55816                  | 0                          | -22576                        | -67.9%      |             |            | 0          | 66                           | -453                            | -2264               | -1132             | -18793 | -22642                           | -68.1%                |      |      |                      |                      |                     |                     |
| Jun'03                 |       | 62340               | 20291                  | 0                          | 42149                         | 67.6%       |             |            | 0          | 126                          | 403                             | 2917                | 1088              | 16738  | 20166                            | 32.3%                 |      |      |                      |                      |                     |                     |
| Jul'03                 | 06/07 | 48700               | 40883                  | 0                          | 7817                          | 16.1%       |             |            | 0          | 97                           | 154                             | 772                 | 386               | 6407   | 7720                             | 15.9%                 |      |      |                      |                      |                     |                     |
| Aug'03                 |       | 39935               | 42553                  | 0                          | -2618                         | -6.6%       |             |            | 0          | 80                           | -54                             | -270                | -135              | -2239  | -2698                            | -6.8%                 |      |      |                      |                      |                     |                     |
| Sep'03                 |       | 48450               | 35562                  | 0                          | 10888                         | 23.4%       |             |            | 0          | 93                           | 216                             | 1080                | 540               | 8960   | 10795                            | 23.2%                 |      |      |                      |                      |                     |                     |
| Oct'03                 |       | 50840               | 41849                  | 0                          | 8991                          | 17.5%       |             |            | 0          | 102                          | 176                             | 879                 | 439               | 7295   | 8786                             | 17.3%                 |      |      |                      |                      |                     |                     |
| Nov'03                 |       | 57100               | 59569                  | 0                          | -2469                         | -4.3%       |             |            | 0          | 114                          | -52                             | -258                | -129              | -2144  | -2583                            | -4.5%                 |      |      |                      |                      |                     |                     |
| Dec'03                 | 07/08 | 77240               | 73266                  | 0                          | 3984                          | 5.2%        |             |            | 0          | 154                          | 77                              | 383                 | 191               | 3179   | 3830                             | 5.0%                  |      |      |                      |                      |                     |                     |
| Jan'04                 |       | 90335               | 84251                  | 0                          | 6084                          | 6.7%        |             |            | 0          | 161                          | 118                             | 590                 | 295               | 4900   | 5903                             | 6.5%                  |      |      |                      |                      |                     |                     |
| Feb'04                 |       | 70180               | 74876                  | 0                          | -4696                         | -6.7%       |             |            | 0          | 140                          | -97                             | -484                | -242              | -4014  | -4836                            | -6.9%                 |      |      |                      |                      |                     |                     |
| Mrt'04                 |       | 90400               | 73034                  | 0                          | 17366                         | 19.2%       |             |            | 0          | 181                          | 344                             | 1719                | 859               | 14264  | 17185                            | 19.0%                 |      |      |                      |                      |                     |                     |
| Apr'04                 |       | 67600               | 61997                  | 0                          | 5603                          | 8.3%        |             |            | 0          | 135                          | 109                             | 547                 | 273               | 4538   | 5468                             | 8.1%                  |      |      |                      |                      |                     |                     |
| May'04                 | 08/09 | 63300               | 150802                 | 0                          | -150802                       | -24.0%      |             |            | 0          | 127                          | 302                             | 1508                | 754               | 12518  | 15081                            | 23.8%                 |      |      |                      |                      |                     |                     |
| Jun'04                 |       | 57590               | 52115                  | 0                          | 5475                          | 9.5%        |             |            | 0          | 115                          | 107                             | 536                 | 268               | 4449   | 5360                             | 9.3%                  |      |      |                      |                      |                     |                     |
| Jul'04                 |       | 42170               | 34597                  | 0                          | 7573                          | 18.0%       |             |            | 0          | 84                           | 150                             | 749                 | 374               | 6216   | 7489                             | 17.8%                 |      |      |                      |                      |                     |                     |
| Sep'04                 |       | 53830               | 37509                  | 0                          | 15322                         | 29.0%       |             |            | 0          | 106                          | 304                             | 1522                | 761               | 12629  | 15216                            | 28.8%                 |      |      |                      |                      |                     |                     |
| Oct'04                 |       | 51670               | 44747                  | 0                          | 6923                          | 13.4%       |             |            | 0          | 103                          | 136                             | 682                 | 341               | 5660   | 6820                             | 13.2%                 |      |      |                      |                      |                     |                     |
| Nov'04                 | 09/10 | 61910               | 45359                  | 0                          | 16552                         | 26.7%       |             |            | 0          | 124                          | 329                             | 1643                | 821               | 13635  | 16428                            | 26.5%                 |      |      |                      |                      |                     |                     |
| Dec'04                 |       | 63566               | 52565                  | 0                          | 11001                         | 17.3%       |             |            | 0          | 127                          | 217                             | 1087                | 544               | 9025   | 10874                            | 17.1%                 |      |      |                      |                      |                     |                     |
| Jan'05                 |       | 60899               | 61400                  | 0                          | -501                          | -0.8%       |             |            | 0          | 104                          | -12                             | -12                 | -31               | -517   | -502                             | -0.8%                 |      |      |                      |                      |                     |                     |
| Feb'05                 |       | 85180               | 58958                  | 0                          | 26222                         | 30.8%       |             |            | 0          | 170                          | 521                             | 2605                | 1303              | 21623  | 26052                            | 30.6%                 |      |      |                      |                      |                     |                     |
| Mrt'05                 |       | 61080               | 54065                  | 0                          | 7016                          | 11.5%       |             |            | 0          | 122                          | 138                             | 689                 | 345               | 5721   | 6893                             | 11.3%                 |      |      |                      |                      |                     |                     |
| Apr'05                 | 10/11 | 49490               | 47363                  | 0                          | 2127                          | 4.3%        |             |            | 0          | 99                           | 101                             | 515                 | 257               | 4168   | 5151                             | 4.1%                  |      |      |                      |                      |                     |                     |
| May'05                 |       | 53420               | 46954                  | 0                          | 6466                          | 12.1%       |             |            | 0          | 107                          | 127                             | 636                 | 318               | 5278   | 6359                             | 11.9%                 |      |      |                      |                      |                     |                     |
| Jun'05                 |       | 39640               | 39697                  | 0                          | -57                           | -0.1%       |             |            | 0          | 79                           | -3                              | -14                 | -7                | -113   | -136                             | -0.3%                 |      |      |                      |                      |                     |                     |
| Jul'05                 |       | 50400               | 34388                  | 0                          | 16012                         | 26.4%       |             |            | 0          | 101                          | 264                             | 1321                | 661               | 10998  | 13262                            | 26.2%                 |      |      |                      |                      |                     |                     |
| Aug'05                 |       | 42940               | 146772                 | 0                          | -146732                       | -14.4%      |             |            | 0          | 86                           | 122                             | 608                 | 304               | 5048   | 6082                             | 14.2%                 |      |      |                      |                      |                     |                     |
| Sep'05                 | 11/12 | 46580               | 39382                  | 0                          | 7198                          | 15.5%       |             |            | 0          | 93                           | 142                             | 711                 | 355               | 5897   | 7105                             | 15.3%                 |      |      |                      |                      |                     |                     |
| Oct'05                 |       | 43070               | 38748                  | 0                          | 4322                          | 10.0%       |             |            | 0          | 86                           | 85                              | 424                 | 212               | 3516   | 4236                             | 9.8%                  |      |      |                      |                      |                     |                     |
| Nov'05                 |       | 60900               | 42770                  | 0                          | 18130                         | 29.8%       |             |            | 0          | 122                          | 360                             | 1801                | 900               | 14947  | 18000                            | 29.6%                 |      |      |                      |                      |                     |                     |
| Dec'05                 |       | 60930               | 52555                  | 0                          | 8276                          | 13.6%       |             |            | 0          | 122                          | 163                             | 815                 | 408               | 6768   | 8154                             | 13.4%                 |      |      |                      |                      |                     |                     |
| Jan'06                 |       | 65260               | 73608                  | 0                          | -8348                         | -12.8%      |             |            | 0          | 131                          | -170                            | -848                | -424              | -7037  | -8479                            | -13.0%                |      |      |                      |                      |                     |                     |
| Feb'06                 | 12/13 | 99910               | 73556                  | 0                          | 22354                         | 23.3%       |             |            | 0          | 192                          | 443                             | 2216                | 1108              | 18394  | 22162                            | 23.1%                 |      |      |                      |                      |                     |                     |
| Mrt'06                 |       | 79100               | 3813                   | 0                          | 75967                         | 4.8%        |             |            | 0          | 158                          | 365                             | 183                 | 73                | 3053   | 3654                             | 4.8%                  |      |      |                      |                      |                     |                     |
| Apr'06                 |       | 77930               | 66981                  | 0                          | 10949                         | 14.1%       |             |            | 0          | 156                          | 216                             | 1079                | 540               | 8958   | 10793                            | 13.9%                 |      |      |                      |                      |                     |                     |
| May'06                 |       | 84740               | 71411                  | 0                          | -16671                        | -10.3%      |             |            | 0          | 129                          | -136                            | -680                | -340              | -5644  | -6800                            | -10.5%                |      |      |                      |                      |                     |                     |
| Jun'06                 |       | 62970               | 61400                  | 0                          | 15349                         | 24.4%       |             |            | 0          | 126                          | 422                             | 1822                | 761               | 12422  | 15349                            | 24.2%                 |      |      |                      |                      |                     |                     |
| Jul'06                 | 01/02 | 55010               | 38187                  | 0                          | 16823                         | 30.6%       |             |            | 0          | 110                          | 334                             | 1671                | 836               | 13871  | 16713                            | 30.4%                 |      |      |                      |                      |                     |                     |
| Aug'06                 |       | 51090               | 39524                  | 0                          | 11467                         | 22.4%       |             |            | 0          | 102                          | 227                             | 1136                | 568               | 9432   | 11364                            | 22.2%                 |      |      |                      |                      |                     |                     |
| Sep'06                 |       | 71030               | 46421                  | 0                          | 24609                         | 34.6%       |             |            | 0          | 142                          | 489                             | 2447                | 1223              | 20307  | 24467                            | 34.4%                 |      |      |                      |                      |                     |                     |
| Oct'06                 |       | 52170               | 42009                  | 0                          | 12101                         | 23.2%       |             |            | 0          | 106                          | 304                             | 1522                | 761               | 12629  | 15216                            | 28.8%                 |      |      |                      |                      |                     |                     |

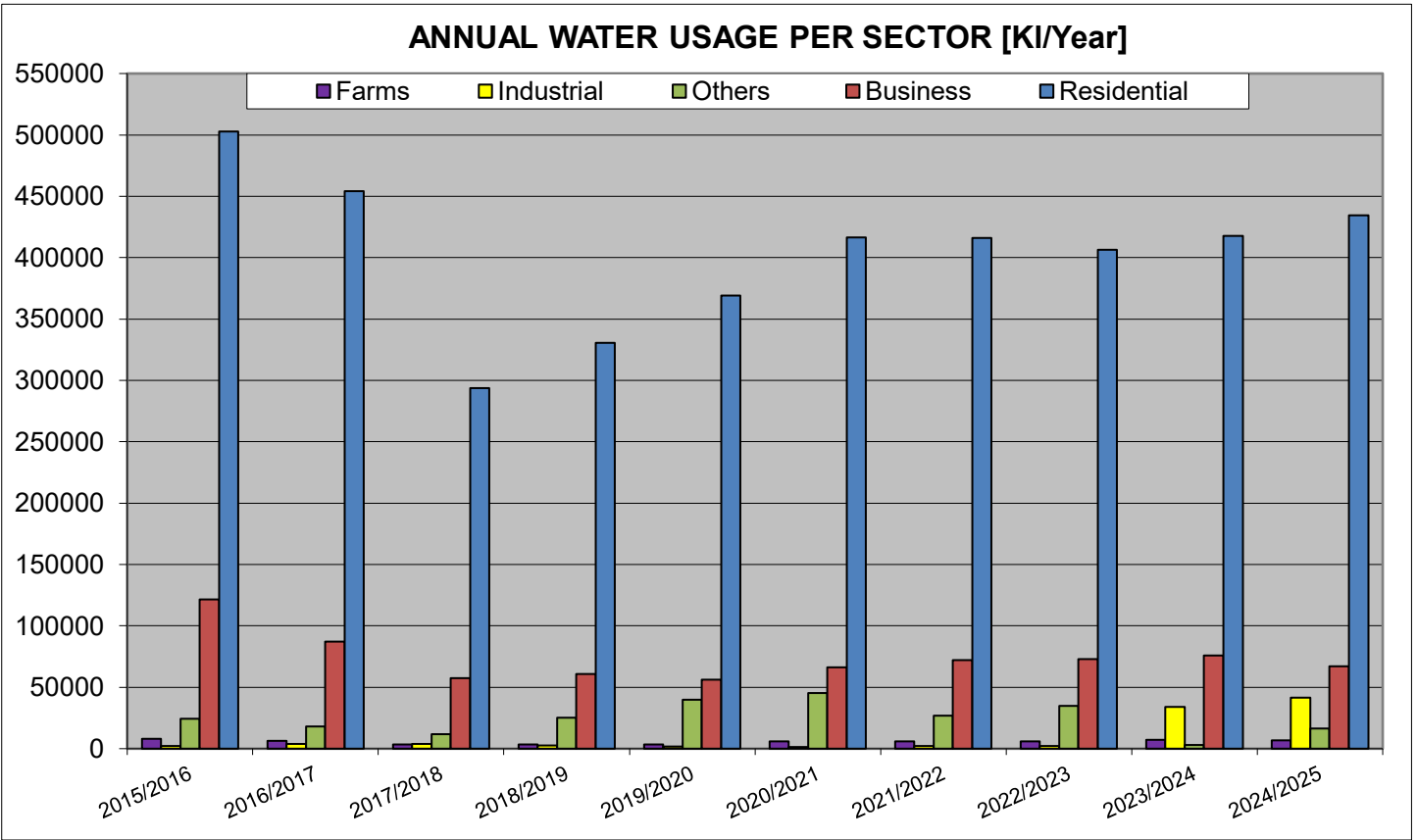
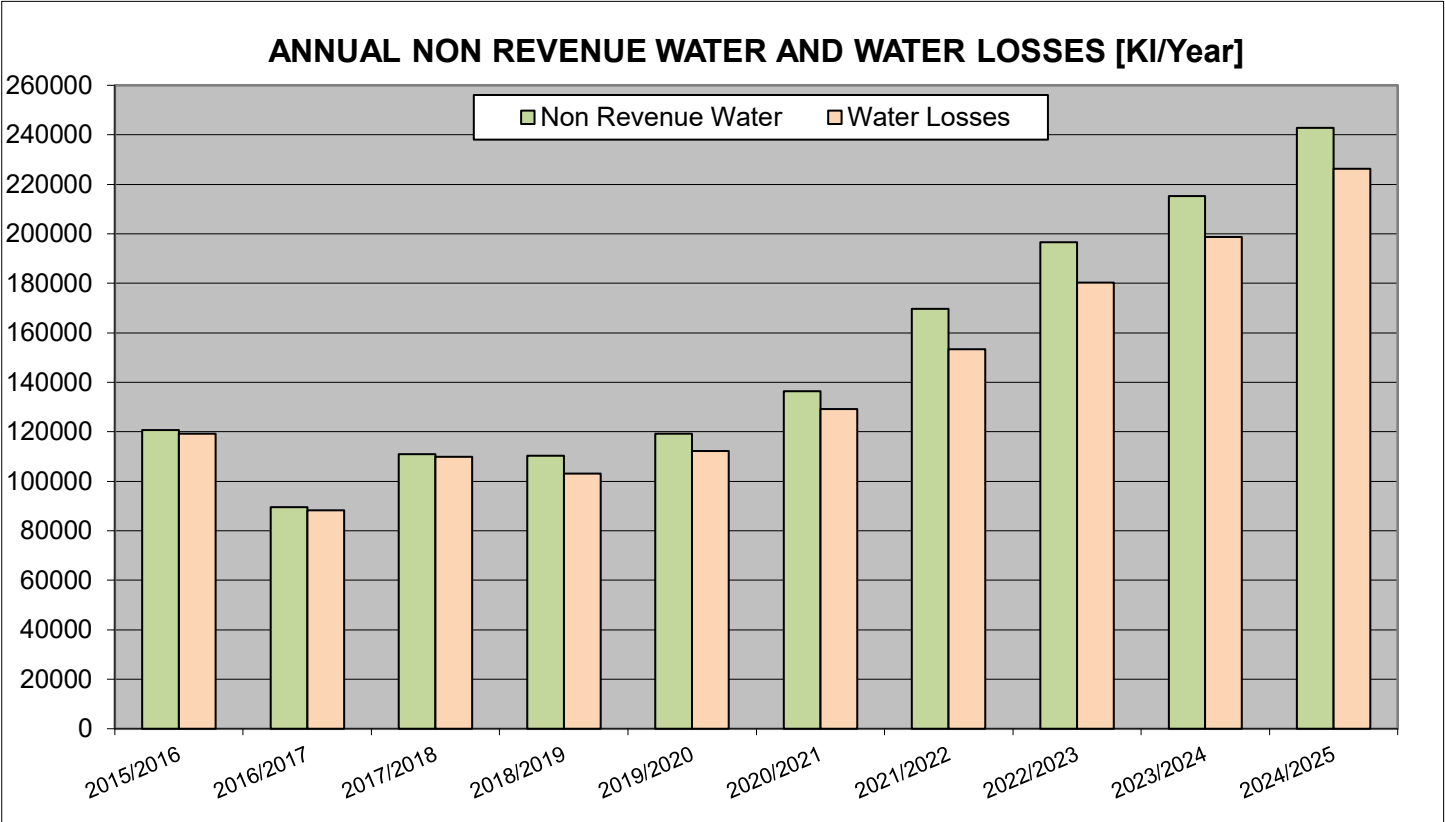
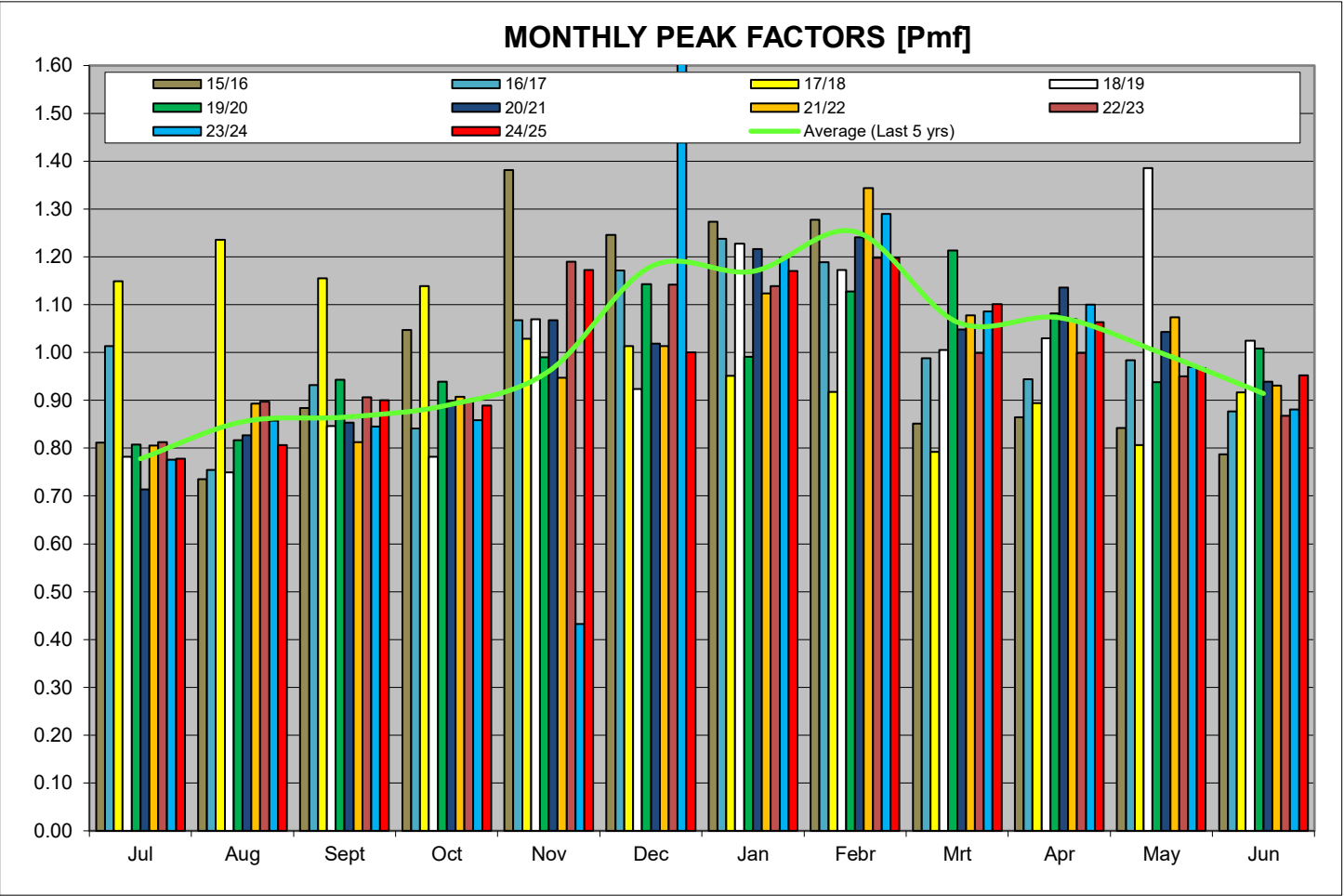


| SWARTLAND MUNICIPALITY |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                                   |       |                      |                      |                     |                     |
|------------------------|-------|----------------------|------------------------|----------------------------|-------------------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------|-----------------------------------|-------|----------------------|----------------------|---------------------|---------------------|
| Moorreesburg           |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                                   |       |                      |                      |                     |                     |
|                        |       | TREATED WATER SUPPLY |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                                   |       |                      |                      |                     |                     |
| Month                  | Year  | System Input Volume  | Revenue Water          |                            | Non Revenue Water (NRW)       |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                                   |       | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |
|                        |       |                      | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       | Real Losses                      |                                   |       |                      |                      |                     |                     |
|                        |       |                      |                        |                            |                               |             |             |            |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |                                   |       |                      |                      |                     |                     |
|                        |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  | Estimated Percentages (Variables) |       |                      |                      |                     |                     |
|                        |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                                   |       |                      |                      |                     |                     |
|                        |       |                      | [m³]                   | [m³]                       | [m³]                          | [m³]        | [m³]        | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]                  | [m³]                             | [m³]                              | [m³]  | [m³]                 | [m³]                 |                     |                     |
| Jul17                  | 17/18 | 46056                | 37729                  | 0                          | 8327                          | 18.1%       | 0           | 92         | 165        | 823                          | 412                             | 6835                | 8235              | 17%                   | 109948                           | 22.9%                             | 17.9% |                      |                      |                     |                     |
| Aug17                  |       | 49514                | 25357                  | 0                          | 24157                         | 48.8%       | 0           | 99         | 2408       | 999                          | 1203                            | 19988               | 24058             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep17                  |       | 46280                | 36204                  | 0                          | 10076                         | 21.6%       | 0           | 93         | 200        | 998                          | 499                             | 8286                | 9983              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct17                  |       | 45638                | 36040                  | 0                          | 9598                          | 21.0%       | 0           | 91         | 190        | 951                          | 475                             | 7891                | 9507              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov17                  |       | 41199                | 33446                  | 0                          | 7753                          | 18.8%       | 0           | 82         | 153        | 767                          | 384                             | 6367                | 7671              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec17                  |       | 40612                | 32046                  | 0                          | 8566                          | 21.1%       | 0           | 81         | 170        | 848                          | 424                             | 7042                | 8485              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan18                  |       | 38131                | 33372                  | 0                          | 4759                          | 12.5%       | 0           | 76         | 94         | 468                          | 234                             | 3887                | 4683              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb18                  |       | 36747                | 25320                  | 0                          | 11427                         | 31.1%       | 0           | 73         | 227        | 1135                         | 568                             | 9423                | 11354             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr18                   |       | 31755                | 27921                  | 0                          | 3834                          | 12.1%       | 0           | 64         | 73         | 377                          | 189                             | 3130                | 3770              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr18                  |       | 35838                | 28655                  | 0                          | 7183                          | 20.0%       | 0           | 72         | 142        | 711                          | 356                             | 5902                | 7111              |                       |                                  |                                   |       |                      |                      |                     |                     |
| May18                  |       | 32303                | 28335                  | 0                          | 3968                          | 12.3%       | 0           | 65         | 78         | 390                          | 195                             | 3240                | 3903              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun18                  |       | 36716                | 25454                  | 0                          | 11262                         | 30.7%       | 0           | 73         | 224        | 1119                         | 559                             | 9287                | 11189             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jul18                  | 18/19 | 34707                | 27257                  | 0                          | 7450                          | 21.5%       | 0           | 567        | 138        | 688                          | 344                             | 5713                | 6883              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug18                  |       | 33267                | 29831                  | 0                          | 3436                          | 10.3%       | 0           | 565        | 57         | 287                          | 144                             | 2383                | 2871              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep18                  |       | 37556                | 30324                  | 0                          | 7232                          | 19.3%       | 0           | 573        | 133        | 666                          | 333                             | 5527                | 6659              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct18                  |       | 34719                | 32162                  | 0                          | 2557                          | 7.4%        | 0           | 567        | 40         | 199                          | 99                              | 1651                | 1990              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov18                  |       | 47459                | 36221                  | 0                          | 11238                         | 23.7%       | 0           | 593        | 213        | 1065                         | 532                             | 8835                | 10645             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec18                  |       | 40995                | 33820                  | 0                          | 7175                          | 17.5%       | 0           | 580        | 132        | 660                          | 330                             | 5474                | 6595              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan19                  |       | 54480                | 41061                  | 0                          | 13419                         | 24.6%       | 0           | 607        | 256        | 1281                         | 641                             | 10634               | 12812             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb19                  |       | 52034                | 39382                  | 0                          | 12652                         | 24.3%       | 0           | 602        | 241        | 1205                         | 602                             | 10001               | 12050             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr19                   |       | 44629                | 34272                  | 0                          | 10357                         | 23.2%       | 0           | 587        | 195        | 977                          | 488                             | 8109                | 9770              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr19                  |       | 45716                | 34914                  | 0                          | 10802                         | 23.6%       | 0           | 589        | 204        | 1021                         | 511                             | 8476                | 10213             |                       |                                  |                                   |       |                      |                      |                     |                     |
| May19                  |       | 61480                | 42887                  | 0                          | 16893                         | 30.7%       | 0           | 621        | 365        | 1827                         | 914                             | 15166               | 18272             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun19                  |       | 45464                | 40462                  | 0                          | 5002                          | 11.0%       | 0           | 589        | 88         | 441                          | 221                             | 3663                | 4413              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jul19                  | 19/20 | 39716                | 31057                  | 0                          | 8659                          | 21.8%       | 0           | 577        | 162        | 808                          | 404                             | 6708                | 8082              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug19                  |       | 40157                | 35134                  | 0                          | 5023                          | 12.5%       | 0           | 578        | 89         | 444                          | 222                             | 3689                | 4445              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep19                  |       | 46361                | 35487                  | 0                          | 10874                         | 23.5%       | 0           | 591        | 206        | 1028                         | 514                             | 8535                | 10283             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct19                  |       | 46191                | 35078                  | 0                          | 11113                         | 24.1%       | 0           | 590        | 210        | 1052                         | 526                             | 8734                | 10523             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov19                  |       | 48687                | 38077                  | 0                          | 9610                          | 19.7%       | 0           | 595        | 180        | 901                          | 451                             | 7482                | 9015              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec19                  |       | 58192                | 39527                  | 0                          | 16665                         | 29.7%       | 0           | 610        | 321        | 1605                         | 803                             | 13325               | 16055             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan20                  |       | 48753                | 48042                  | 0                          | 711                           | 1.5%        | 0           | 596        | 2          | 12                           | 6                               | 98                  | 115               |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb20                  |       | 55476                | 42419                  | 0                          | 13057                         | 23.5%       | 0           | 609        | 249        | 1245                         | 622                             | 10332               | 12448             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr20                   |       | 59661                | 49796                  | 0                          | 9865                          | 16.5%       | 0           | 617        | 185        | 925                          | 462                             | 7676                | 9248              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr20                  |       | 53218                | 37343                  | 0                          | 15875                         | 29.8%       | 0           | 604        | 305        | 1527                         | 764                             | 12675               | 15271             |                       |                                  |                                   |       |                      |                      |                     |                     |
| May20                  |       | 46124                | 36928                  | 0                          | 9196                          | 19.9%       | 0           | 590        | 172        | 861                          | 430                             | 7143                | 8606              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun20                  |       | 49570                | 40917                  | 0                          | 8653                          | 17.5%       | 0           | 597        | 161        | 806                          | 403                             | 6686                | 8056              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jul20                  | 20/21 | 39952                | 44372                  | 0                          | -4420                         | -11.1%      | 0           | 578        | -100       | -500                         | -280                            | -4148               | -4998             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug20                  |       | 46250                | 42011                  | 0                          | 4239                          | 9.2%        | 0           | 591        | 73         | 365                          | 182                             | 3028                | 3648              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep20                  |       | 47790                | 35999                  | 0                          | 12691                         | 26.8%       | 0           | 594        | 242        | 1210                         | 605                             | 10041               | 12098             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct20                  |       | 50208                | 42627                  | 0                          | 7581                          | 15.1%       | 0           | 598        | 140        | 698                          | 349                             | 5796                | 6983              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov20                  |       | 59742                | 42904                  | 0                          | 16838                         | 28.2%       | 0           | 617        | 324        | 1622                         | 811                             | 13463               | 16221             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec20                  |       | 59893                | 42199                  | 0                          | 14784                         | 25.9%       | 0           | 612        | 283        | 1417                         | 709                             | 11762               | 14172             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan21                  |       | 60808                | 57110                  | 0                          | 10979                         | 16.1%       | 0           | 634        | 207        | 1035                         | 517                             | 8586                | 10345             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb21                  |       | 69447                | 53015                  | 0                          | 16432                         | 23.7%       | 0           | 637        | 316        | 1579                         | 790                             | 13110               | 15795             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr21                   |       | 58650                | 47744                  | 0                          | 10906                         | 18.6%       | 0           | 615        | 208        | 1029                         | 515                             | 8542                | 10291             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr21                  |       | 63540                | 48846                  | 0                          | 14694                         | 23.1%       | 0           | 625        | 281        | 1407                         | 703                             | 11677               | 14069             |                       |                                  |                                   |       |                      |                      |                     |                     |
| May21                  |       | 58400                | 42354                  | 0                          | 16046                         | 27.5%       | 0           | 615        | 309        | 1543                         | 772                             | 12808               | 15431             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun21                  |       | 21/22                | 52540                  | 36835                      | 0                             | 15705       | 29.9%       | 0          | 603        | 302                          | 1510                            | 755                 | 12535             | 15102                 |                                  |                                   |       |                      |                      |                     |                     |
| Jul21                  | 46530 |                      | 30299                  | 0                          | 16231                         | 34.9%       | 0           | 1338       | 298        | 1489                         | 745                             | 12361               | 14893             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug21                  | 51600 |                      | 37369                  | 0                          | 14231                         | 27.6%       | 0           | 1348       | 288        | 1288                         | 644                             | 10693               | 12883             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep21                  | 46950 |                      | 35373                  | 0                          | 11577                         | 24.7%       | 0           | 1339       | 205        | 1024                         | 512                             | 8498                | 10239             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct21                  | 52400 |                      | 39129                  | 0                          | 13271                         | 25.3%       | 0           | 1350       | 238        | 1192                         | 596                             | 9895                | 11921             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov21                  | 54720 |                      | 43589                  | 0                          | 11131                         | 20.3%       | 0           | 1354       | 196        | 978                          | 489                             | 8115                | 9777              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec21                  | 58500 |                      | 47152                  | 0                          | 11348                         | 19.4%       | 0           | 1362       | 200        | 999                          | 499                             | 8289                | 9986              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan22                  | 64870 |                      | 51008                  | 0                          | 13862                         | 21.4%       | 0           | 1375       | 250        | 1249                         | 624                             | 10365               | 12488             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb22                  | 77609 |                      | 48275                  | 0                          | 29334                         | 37.8%       | 0           | 1400       | 559        | 2793                         | 1397                            | 23185               | 27933             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr22                   | 62231 |                      | 53858                  | 0                          | 8373                          | 13.5%       | 0           | 1369       | 140        | 700                          | 350                             | 5813                | 7003              |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr22                  | 61780 |                      | 52515                  | 0                          | 8265                          | 15.0%       | 0           | 1369       | 158        | 790                          | 395                             | 6554                | 7896              |                       |                                  |                                   |       |                      |                      |                     |                     |
| May22                  | 62020 |                      | 47328                  | 0                          | 14692                         | 23.7%       | 0           | 1369       | 166        | 866                          | 432                             | 10583               | 13323             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun22                  | 22/23 | 53757                | 37355                  | 0                          | 16402                         | 30.5%       | 0           | 1353       | 301        | 1505                         | 752                             | 12491               | 15050             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jul22                  |       | 48663                | 34704                  | 0                          | 13959                         | 28.7%       | 0           | 1342       | 252        | 1262                         | 631                             | 10472               | 12617             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug22                  |       | 53754                | 38055                  | 0                          | 15699                         | 29.2%       | 0           | 1353       | 287        | 1435                         | 717                             | 11907               | 14346             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep22                  |       | 54256                | 34454                  | 0                          | 19802                         | 36.5%       | 0           | 1354       | 369        | 1845                         | 922                             | 15312               | 18449             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct22                  |       | 53772                | 44134                  | 0                          | 8636                          | 17.9%       | 0           | 1353       | 166        | 829                          | 416                             | 8283                | 15443             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov22                  |       | 71240                | 47630                  | 0                          | 23610                         | 33.1%       | 0           | 1387       | 444        | 2222                         | 1111                            | 18445               | 22222             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec22                  |       | 68390                | 45449                  | 0                          | 22941                         | 33.5%       | 0           | 1382       | 431        | 2156                         | 1078                            | 17894               | 21559             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan23                  |       | 66220                | 49218                  | 0                          | 19002                         | 27.9%       | 0           | 1381       | 352        | 1762                         | 881                             | 14625               | 17621             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb23                  |       | 71720                | 54091                  | 0                          | 17029                         | 23.3%       | 0           | 1388       | 413        | 1964                         | 1013                            | 15841               | 15841             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr23                   |       | 59840                | 47905                  | 0                          | 12745                         | 21.3%       | 0           | 1385       | 228        | 1138                         | 569                             | 9435                | 11380             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr23                  |       | 59850                | 46676                  | 0                          | 13174                         | 22.0%       | 0           | 1365       | 236        | 1181                         | 590                             | 9802                | 11809             |                       |                                  |                                   |       |                      |                      |                     |                     |
| May23                  |       | 55900                | 41115                  | 0                          | 15785                         | 27.7%       | 0           | 1359       | 277        | 14743                        | 721                             | 12189               | 14427             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun23                  | 51970 | 38667                | 0                      | 13303                      | 25.6%                         | 0           | 1349        | 239        | 1195       | 598                          | 9922                            | 11954               |                   |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jul23                  | 23/24 | 48663                | 30176                  | 0                          | 18487                         | 38.0%       | 0           | 1342       | 343        | 1714                         | 857                             | 14230               | 17145             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug23                  |       | 53800                | 35529                  | 0                          | 16271                         | 34.0%       | 0           | 1353       | 338        | 1692                         | 846                             | 14043               | 16919             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep23                  |       | 53040                | 31942                  | 0                          | 11498                         | 21.7%       | 0           | 1351       | 211        | 1015                         | 507                             | 8423                | 10147             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct23                  |       | 53870                | 40467                  | 0                          | 13403                         | 24.9%       | 0           | 1353       | 241        | 1205                         | 603                             | 10002               | 12050             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov23                  |       | 27100                | 43774                  | 0                          | -16674                        | -61.5%      | 0           | 1299       | -359       | -1797                        | -899                            | -14918              | -17973            |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec23                  |       | 107050               | 49607                  | 0                          | 57543                         | 53.8%       | 0           | 1459       | 1122       | 5608                         | 2804                            | 46549               | 56084             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan24                  |       | 76210                | 56907                  | 0                          | 18303                         | 24.3%       | 0           | 1458       | 1691       | 845                          | 1995                            | 14033               | 16908             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb24                  |       | 68120                | 46180                  | 0                          | 26199                         | 32.4%       | 0           | 1407       | 496        | 2479                         | 1209                            | 20577               | 24792             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mar24                  |       | 68120                | 46180                  | 0                          | 21940                         | 31.2%       | 0           | 1381       | 411        | 2056                         | 1028                            | 17064               | 20559             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr24                  |       | 69010                | 52040                  | 0                          | 16970                         | 24.8%       | 0           | 1383       | 312        | 1559                         | 779                             | 12937               | 15587             |                       |                                  |                                   |       |                      |                      |                     |                     |
| May24                  |       | 69020                | 43989                  | 0                          | 17731                         | 29.2%       | 0           | 1367       | 327        | 1636                         | 818                             | 13637               | 16365             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun24                  |       | 24/25                | 55250                  | 43711                      | 0                             | 11539       | 20.9%       | 0          | 1356       | 204                          | 1018                            | 509                 | 8452              | 10184                 |                                  |                                   |       |                      |                      |                     |                     |
| Jul24                  | 52450 |                      | 35919                  | 0                          | 16531                         | 31.5%       | 0           | 1350       | 304        | 1518                         | 759                             | 12601               | 15181             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Aug24                  | 54370 |                      | 38309                  | 0                          | 16081                         | 29.5%       | 0           | 1354       | 294        | 1471                         | 735                             | 12207               | 14707             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Sep24                  | 56860 |                      | 22640                  | 0                          | 22640                         | 37.3%       | 0           | 1366       | 166        | 2127                         | 1061                            | 10614               | 21274             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Oct24                  | 59970 |                      | 34732                  | 0                          | 25238                         | 42.1%       | 0           | 1365       | 477        | 2387                         | 1194                            | 19815               | 23873             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Nov24                  | 79050 |                      | 61263                  | 0                          | 17787                         | 22.5%       | 0           | 1403       | 328        | 1638                         | 819                             | 13599               | 16384             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Dec24                  | 67420 |                      | 51891                  | 0                          | 15529                         | 23.0%       | 0           | 1380       | 283        | 1415                         | 707                             | 11744               | 14149             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jan25                  | 52918 |                      | 32088                  | 0                          | 26522                         | 33.6%       | 0           | 1403       | 2912       | 12969                        | 602                             | 25118               | 25118             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Feb25                  | 89790 |                      | 60582                  | 0                          | 19870                         | 24.6%       | 0           | 1407       | 369        | 1846                         | 923                             | 15324               | 18463             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Mr25                   | 74210 |                      | 55067                  | 0                          | 19143                         | 25.8%       | 0           | 1393       | 355        | 1775                         | 887                             | 14732               | 17750             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Apr25                  | 71672 |                      | 50997                  | 0                          | 22094                         | 30.8%       | 0           | 1398       | 414        | 2071                         | 1035                            | 17692               | 20706             |                       |                                  |                                   |       |                      |                      |                     |                     |
| May25                  | 65246 |                      | 46346                  | 0                          | 18902                         | 29.0%       | 0           | 1375       | 351        | 1753                         | 876                             | 14547               | 17527             |                       |                                  |                                   |       |                      |                      |                     |                     |
| Jun25                  | 64210 | 41771                | 0                      | 22439                      | 34.9%                         | 0           | 1373        | 421        | 2107       | 1053                         | 17485                           | 21066               |                   |                       |                                  |                                   |       |                      |                      |                     |                     |

WATER BALANCE AND USAGE FOR MOORREESBURG DISTRIBUTION SYTEM

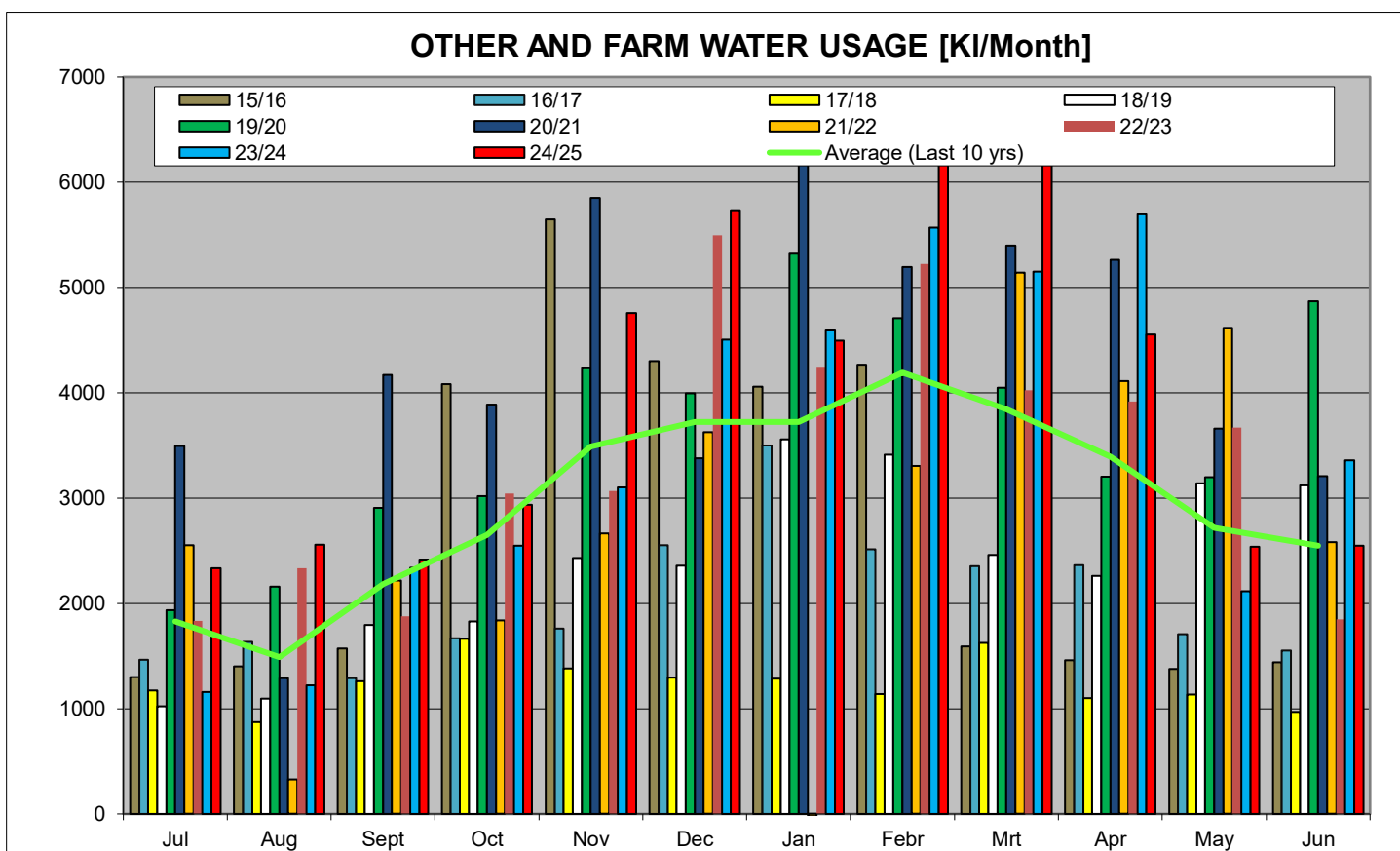
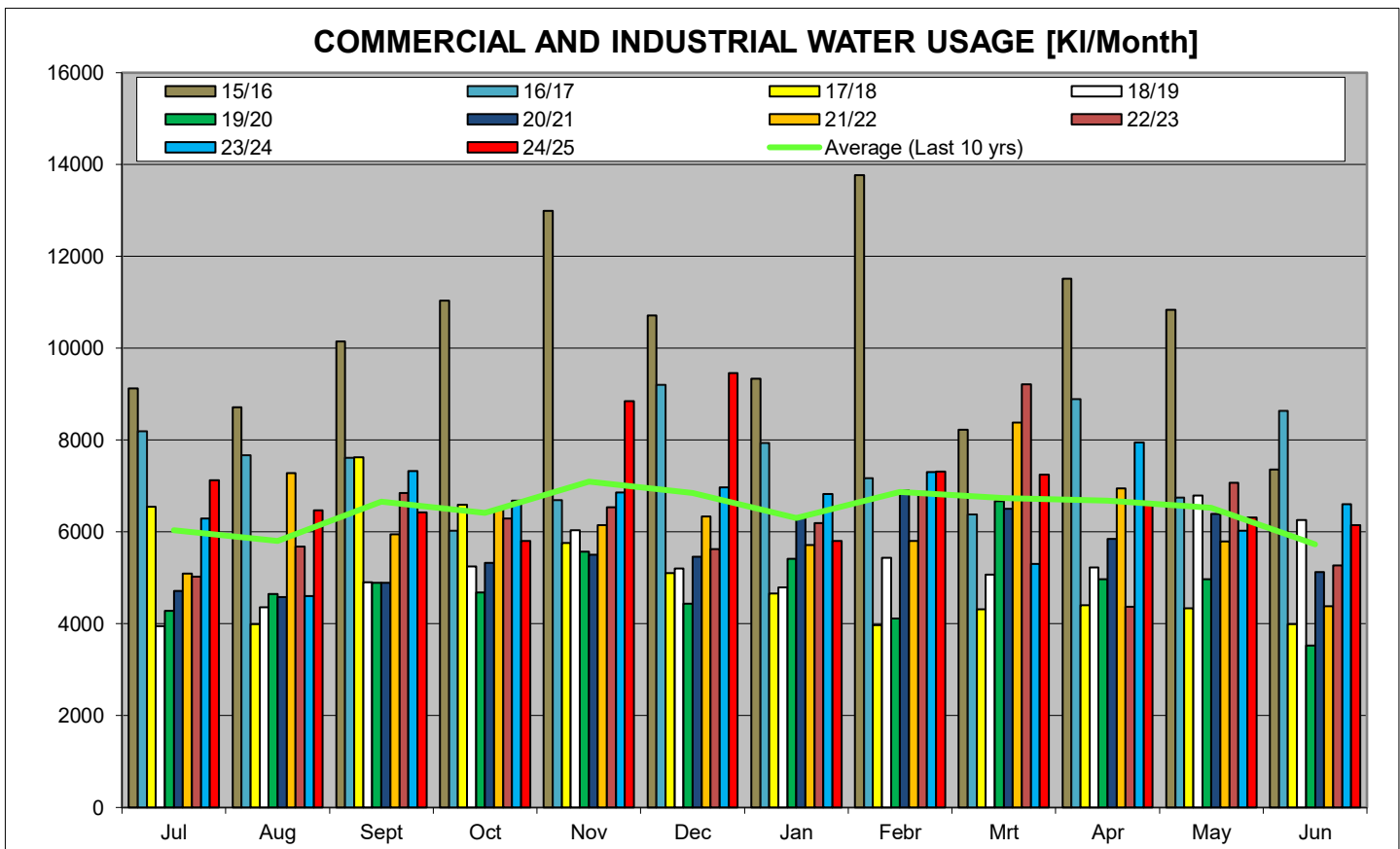
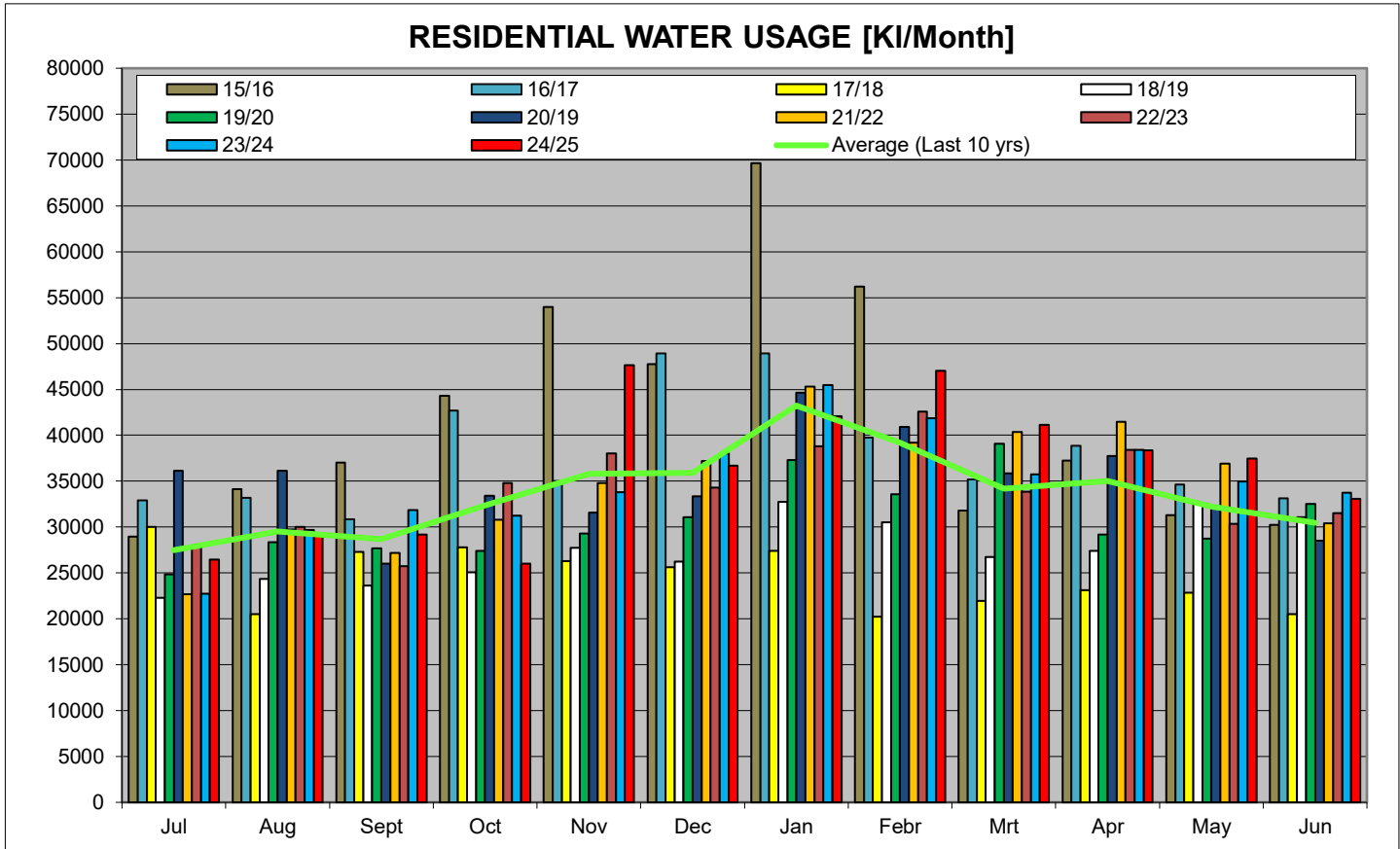


WATER BALANCE AND USAGE FOR MOORREESBURG DISTRIBUTION SYTEM





## WATER BALANCE AND USAGE FOR MOORREESBURG DISTRIBUTION SYTEM

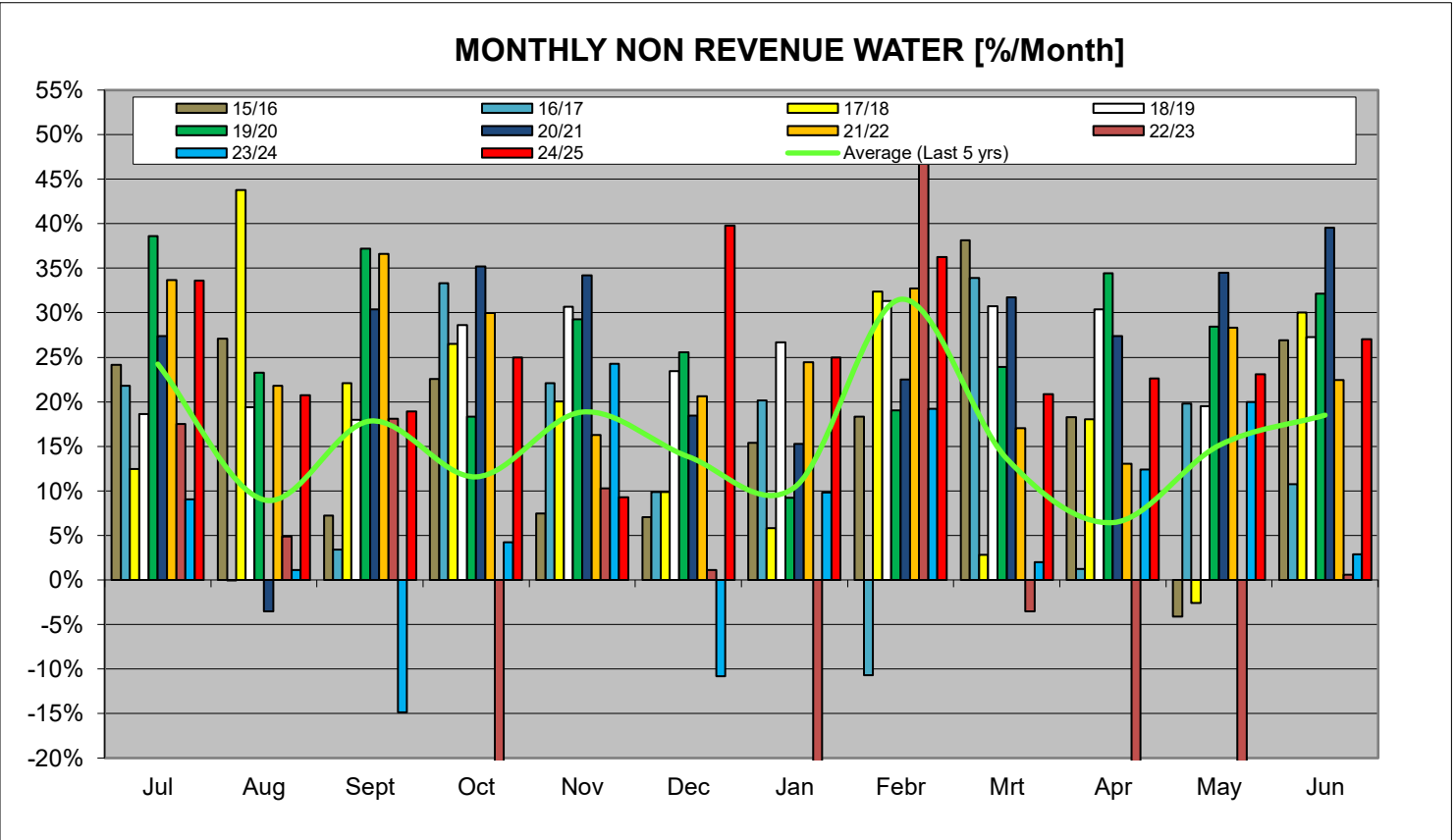
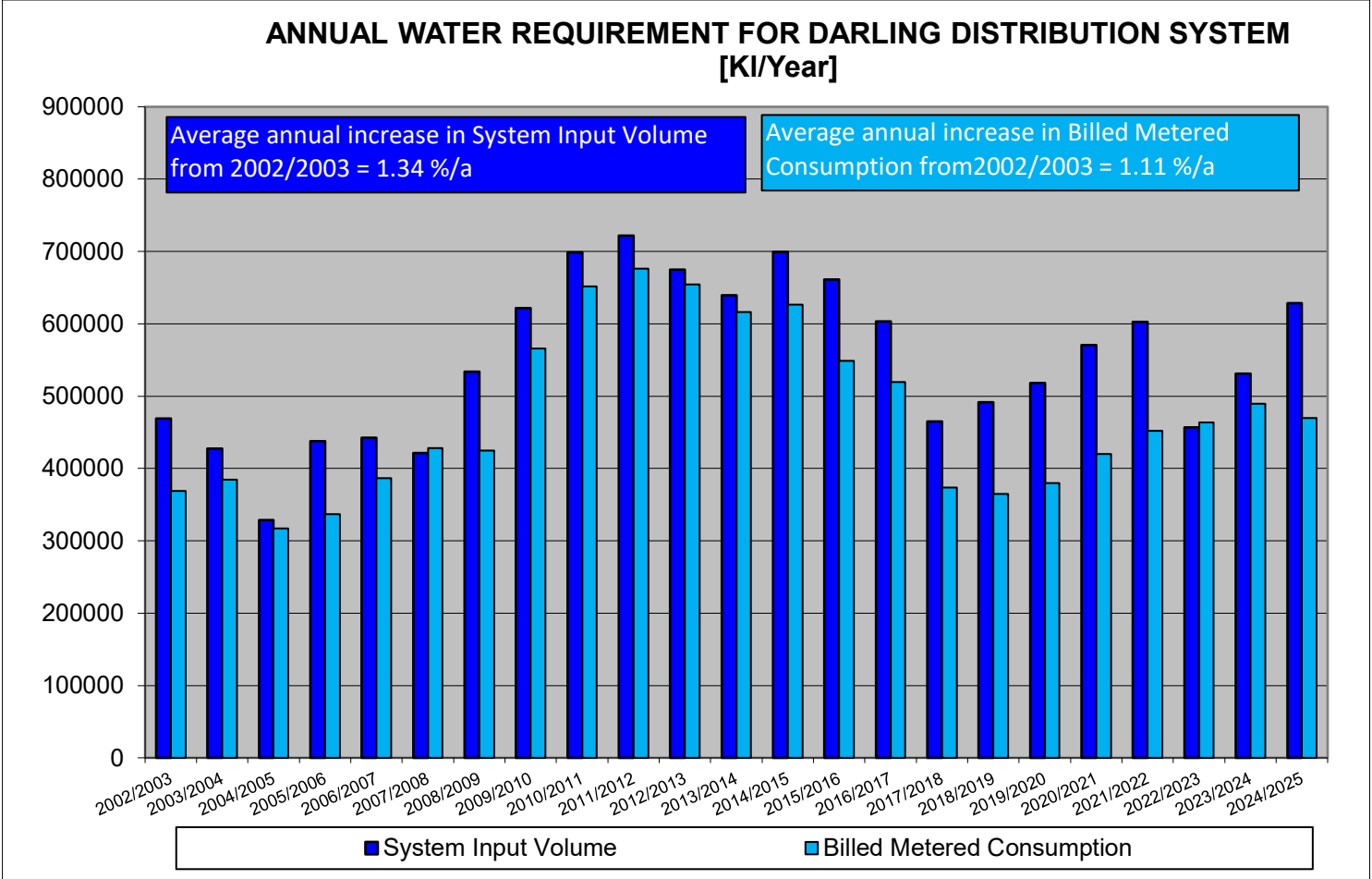
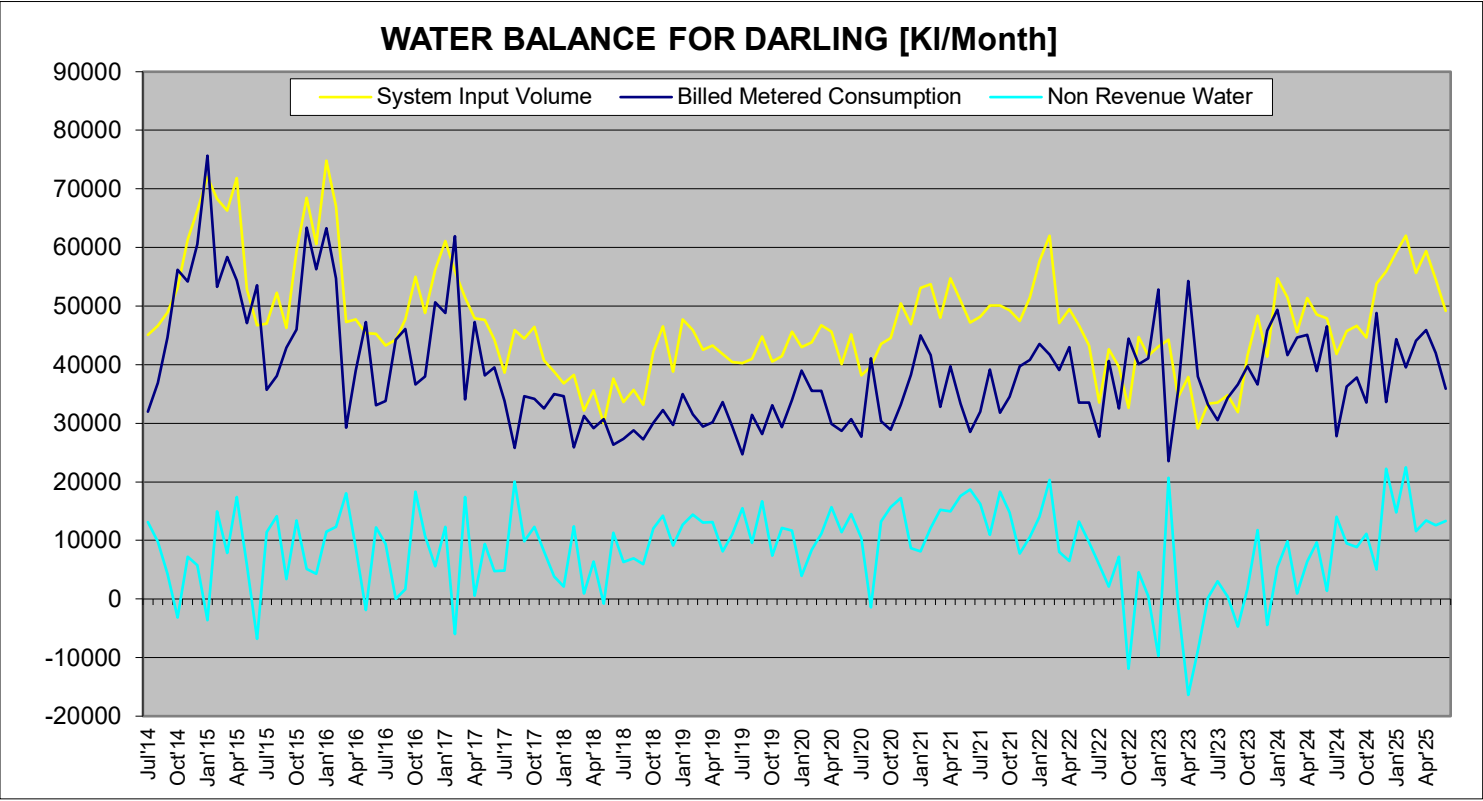




| SWARTLAND MUNICIPALITY |       |                     |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
|------------------------|-------|---------------------|------------------------|----------------------------|-------------------------------|-------------------------|-------------|------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------|-------------|----------------------|----------------------|---------------------|---------------------|
| Darling                |       |                     |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Month                  | Year  | System Input Volume | TREATED WATER SUPPLY   |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
|                        |       |                     | Revenue Water          |                            |                               | Non Revenue Water (NRW) |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW             | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       |                                  | Real Losses | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |
|                        |       |                     |                        |                            |                               |                         |             |            |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |             |                      |                      |                     |                     |
|                        |       |                     |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| 2%                     | 10%   | 5%                  | 83%                    |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| [m³]                   | [m³]  | [m³]                | [m³]                   | [%]                        | [m³]                          | [%]                     | [m³]        | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]                  | [m³]                             | [%]         | [m³]                 | [%]                  |                     |                     |
| Jan01                  | 00/01 | 47610               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Feb01                  |       | 38380               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Mrt01                  |       | 42530               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Apr01                  |       | 40000               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| May01                  |       | 30450               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Jun01                  | 01/02 | 22860               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Jul01                  |       | 27450               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Aug01                  |       | 22950               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Sep01                  |       | 25710               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Oct01                  |       | 32450               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Nov01                  | 02/03 | 30120               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Dec01                  |       | 36160               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Jan02                  |       | 48050               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Feb02                  |       | 37330               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Mrt02                  |       | 46620               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Apr02                  | 03/04 | 41990               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| May02                  |       | 25430               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Jun02                  |       | 31950               |                        |                            |                               |                         |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |
| Jul02                  |       | 32060               | 21331                  | 0                          | 10729                         | 33.5%                   |             |            | 0          | 64                           | 213                             | 1066                | 533               | 8852                  | 10665                            | 33.3%       |                      |                      |                     |                     |
| Aug02                  |       | 25190               | 20110                  | 0                          | 5080                          | 20.2%                   |             |            | 0          | 50                           | 101                             | 503                 | 251               | 4175                  | 5030                             | 20.0%       |                      |                      |                     |                     |
| Sep02                  | 04/05 | 31370               | 21251                  | 0                          | 10119                         | 32.3%                   |             |            | 0          | 63                           | 201                             | 1006                | 503               | 8347                  | 10056                            | 32.1%       |                      |                      |                     |                     |
| Oct02                  |       | 33080               | 27723                  | 0                          | 5357                          | 16.2%                   |             |            | 0          | 66                           | 106                             | 529                 | 265               | 4391                  | 5291                             | 16.0%       |                      |                      |                     |                     |
| Nov02                  |       | 34080               | 28597                  | 0                          | 5483                          | 16.1%                   |             |            | 0          | 68                           | 108                             | 541                 | 271               | 4494                  | 5415                             | 15.9%       |                      |                      |                     |                     |
| Dec02                  |       | 50170               | 40298                  | 0                          | 9872                          | 19.7%                   |             |            | 0          | 100                          | 195                             | 977                 | 489               | 8110                  | 9772                             | 19.5%       |                      |                      |                     |                     |
| Jan03                  |       | 54170               | 45079                  | 0                          | 9091                          | 16.8%                   |             |            | 0          | 108                          | 180                             | 898                 | 449               | 7456                  | 8983                             | 16.6%       |                      |                      |                     |                     |
| Feb03                  | 05/06 | 56150               | 57233                  | 0                          | 1083                          | 1.9%                    |             |            | 0          | 112                          | 24                              | 120                 | 60                | 392                   | 1195                             | 2.1%        |                      |                      |                     |                     |
| Mrt03                  |       | 35970               | 17558                  | 0                          | 18412                         | 51.2%                   |             |            | 0          | 72                           | 367                             | 1834                | 917               | 15222                 | 18340                            | 51.0%       |                      |                      |                     |                     |
| Apr03                  |       | 43860               | 28874                  | 0                          | 14986                         | 34.2%                   |             |            | 0          | 88                           | 298                             | 1490                | 745               | 12366                 | 14988                            | 34.0%       |                      |                      |                     |                     |
| May03                  |       | 38960               | 36706                  | 0                          | 2254                          | 5.8%                    |             |            | 0          | 78                           | 44                              | 218                 | 109               | 1806                  | 2176                             | 5.6%        |                      |                      |                     |                     |
| Jun03                  |       | 33930               | 23948                  | 0                          | 9681                          | 29.4%                   |             |            | 0          | 68                           | 158                             | 890                 | 406               | 8328                  | 9913                             | 29.2%       |                      |                      |                     |                     |
| Jul03                  | 06/07 | 28220               | 21919                  | 0                          | 6301                          | 22.3%                   |             |            | 0          | 56                           | 125                             | 624                 | 312               | 5183                  | 6245                             | 22.1%       |                      |                      |                     |                     |
| Aug03                  |       | 25410               | 23396                  | 0                          | 2014                          | 7.9%                    |             |            | 0          | 51                           | 39                              | 196                 | 98                | 1629                  | 1963                             | 7.7%        |                      |                      |                     |                     |
| Sep03                  |       | 33540               | 23884                  | 0                          | 9656                          | 28.8%                   |             |            | 0          | 67                           | 192                             | 959                 | 479               | 7959                  | 9589                             | 28.6%       |                      |                      |                     |                     |
| Oct03                  |       | 30630               | 29462                  | 0                          | 1148                          | 3.7%                    |             |            | 0          | 61                           | 22                              | 109                 | 54                | 902                   | 1087                             | 3.5%        |                      |                      |                     |                     |
| Nov03                  |       | 38380               | 47093                  | 0                          | 8713                          | 22.7%                   |             |            | 0          | 77                           | 176                             | 879                 | 439               | 7296                  | 8790                             | 22.9%       |                      |                      |                     |                     |
| Dec03                  | 07/08 | 45480               | 26475                  | 0                          | 19005                         | 41.8%                   |             |            | 0          | 91                           | 378                             | 1891                | 946               | 15699                 | 18914                            | 41.6%       |                      |                      |                     |                     |
| Jan04                  |       | 36550               | 45348                  | 0                          | 8798                          | -24.1%                  |             |            | 0          | 73                           | 177                             | 887                 | 444               | 7363                  | 8871                             | -24.3%      |                      |                      |                     |                     |
| Feb04                  |       | 47830               | 42058                  | 0                          | 5772                          | 12.1%                   |             |            | 0          | 96                           | 114                             | 568                 | 284               | 4711                  | 5676                             | 11.9%       |                      |                      |                     |                     |
| Mrt04                  |       | 31160               | 36118                  | 0                          | 4958                          | -15.9%                  |             |            | 0          | 62                           | 100                             | 502                 | 251               | 4167                  | 5020                             | -16.1%      |                      |                      |                     |                     |
| Apr04                  |       | 38590               | 31979                  | 0                          | 6611                          | 17.1%                   |             |            | 0          | 77                           | 131                             | 653                 | 327               | 5423                  | 6534                             | 16.9%       |                      |                      |                     |                     |
| May04                  | 08/09 | 36020               | 28082                  | 0                          | 7938                          | 22.0%                   |             |            | 0          | 72                           | 157                             | 787                 | 393               | 6529                  | 7866                             | 21.8%       |                      |                      |                     |                     |
| Jun04                  |       | 35400               | 28642                  | 0                          | 6758                          | 19.1%                   |             |            | 0          | 71                           | 134                             | 669                 | 334               | 5550                  | 6687                             | 18.9%       |                      |                      |                     |                     |
| Jul04                  |       | 26790               | 21603                  | 0                          | 5187                          | 19.4%                   |             |            | 0          | 54                           | 103                             | 513                 | 257               | 4261                  | 5133                             | 19.2%       |                      |                      |                     |                     |
| Aug04                  |       | 28150               | 22879                  | 0                          | 5271                          | 18.7%                   |             |            | 0          | 56                           | 104                             | 521                 | 261               | 4328                  | 5215                             | 18.5%       |                      |                      |                     |                     |
| Sep04                  |       | 28450               | 25965                  | 0                          | 2485                          | 8.7%                    |             |            | 0          | 57                           | 49                              | 243                 | 121               | 2015                  | 2428                             | 8.5%        |                      |                      |                     |                     |
| Oct04                  | 09/10 | 31870               | 24322                  | 0                          | 7548                          | 23.7%                   |             |            | 0          | 64                           | 150                             | 748                 | 374               | 6212                  | 7484                             | 23.5%       |                      |                      |                     |                     |
| Nov04                  |       | 21010               | 28579                  | 0                          | 7569                          | -36.0%                  |             |            | 0          | 42                           | -152                            | -761                | -381              | -6317                 | -7611                            | -36.2%      |                      |                      |                     |                     |
| Dec04                  |       | 34560               | 33272                  | 0                          | 1288                          | 3.7%                    |             |            | 0          | 69                           | 24                              | 122                 | 61                | 1012                  | 1219                             | 3.5%        |                      |                      |                     |                     |
| Jan05                  |       | 23270               | 31666                  | 0                          | 8396                          | -36.1%                  |             |            | 0          | 47                           | -169                            | -844                | -422              | -7007                 | -8443                            | -36.3%      |                      |                      |                     |                     |
| Feb05                  |       | 26280               | 30473                  | 0                          | 4193                          | -16.0%                  |             |            | 0          | 53                           | -85                             | -425                | -212              | -3524                 | -4246                            | -16.2%      |                      |                      |                     |                     |
| Mrt05                  | 10/11 | 21160               | 27337                  | 0                          | 6177                          | -29.2%                  |             |            | 0          | 43                           | -172                            | -859                | -430              | -7130                 | -8591                            | -29.4%      |                      |                      |                     |                     |
| Apr05                  |       | 33550               | 27645                  | 0                          | 5905                          | 17.6%                   |             |            | 0          | 67                           | 117                             | 584                 | 292               | 4845                  | 5839                             | 17.4%       |                      |                      |                     |                     |
| May05                  |       | 27910               | 21961                  | 0                          | 5949                          | 21.3%                   |             |            | 0          | 56                           | 118                             | 589                 | 295               | 4891                  | 5893                             | 21.1%       |                      |                      |                     |                     |
| Jun05                  |       | 26030               | 21522                  | 0                          | 4508                          | 17.3%                   |             |            | 0          | 52                           | 89                              | 446                 | 223               | 3698                  | 4456                             | 17.1%       |                      |                      |                     |                     |
| Jul05                  |       | 22910               | 22529                  | 0                          | 381                           | 1.7%                    |             |            | 0          | 46                           | 7                               | 34                  | 17                | 278                   | 335                              | 1.5%        |                      |                      |                     |                     |
| Aug05                  | 11/12 | 30110               | 23163                  | 0                          | 6947                          | 23.1%                   |             |            | 0          | 60                           | 138                             | 689                 | 344               | 5716                  | 6887                             | 22.9%       |                      |                      |                     |                     |
| Sep05                  |       | 24320               | 22075                  | 0                          | 2245                          | 9.2%                    |             |            | 0          | 49                           | 44                              | 220                 | 110               | 1823                  | 2197                             | 9.0%        |                      |                      |                     |                     |
| Oct05                  |       | 21270               | 24246                  | 0                          | 2976                          | -14.0%                  |             |            | 0          | 43                           | -60                             | -302                | -151              | -2505                 | -3019                            | -14.2%      |                      |                      |                     |                     |
| Nov05                  |       | 35200               | 28311                  | 0                          | 6889                          | 19.6%                   |             |            | 0          | 70                           | 136                             | 682                 | 341               | 5659                  | 6818                             | 19.4%       |                      |                      |                     |                     |
| Dec05                  |       | 36030               | 39350                  | 0                          | 3320                          | -9.2%                   |             |            | 0          | 72                           | -68                             | -339                | -170              | -2815                 | -3352                            | -9.4%       |                      |                      |                     |                     |
| Jan06                  | 12/13 | 45140               | 20665                  | 0                          | 24475                         | 54.2%                   |             |            | 0          | 90                           | 488                             | 2438                | 1219              | 20239                 | 24384                            | 54.0%       |                      |                      |                     |                     |
| Feb06                  |       | 49500               | 38172                  | 0                          | 11328                         | 22.9%                   |             |            | 0          | 99                           | 225                             | 1123                | 561               | 9320                  | 11229                            | 22.7%       |                      |                      |                     |                     |
| Mrt06                  |       | 38040               | 38495                  | 0                          | -455                          | -1.2%                   |             |            | 0          | 76                           | -11                             | -53                 | -27               | -440                  | -531                             | -1.4%       |                      |                      |                     |                     |
| Apr06                  |       | 38860               | 31617                  | 0                          | 7243                          | 18.6%                   |             |            | 0          | 78                           | 143                             | 716                 | 358               | 5947                  | 7165                             | 18.4%       |                      |                      |                     |                     |
| May06                  |       | 33700               | 26248                  | 0                          | 7452                          | 22.1%                   |             |            | 0          | 67                           | 148                             | 738                 | 369               | 6129                  | 7385                             | 21.9%       |                      |                      |                     |                     |
| Jun06                  | 01/14 | 62842               | 22330                  | 0                          | 40512                         | 64.5%                   |             |            | 0          | 126                          | 808                             | 4039                | 2019              | 33521                 | 40387                            | 64.3%       |                      |                      |                     |                     |
| Jul06                  |       | 21304               | 23666                  | 0                          | -2362                         | -11.1%                  |             |            | 0          | 43                           | -48                             | -240                | -120              | -1996                 | -2405                            | -11.3%      |                      |                      |                     |                     |
| Aug06                  |       | 29590               | 26596                  | 0                          | 2994                          | 10.1%                   |             |            | 0          | 59                           | 59                              | 293                 | 147               | 2436                  | 2934                             | 9.9%        |                      |                      |                     |                     |
| Sep06                  |       | 25790               | 24891                  | 0                          | 589                           | 3.5%                    |             |            | 0          | 52                           | 17                              | 85                  | 42                | 704                   | 848                              | 3.3%        |                      |                      |                     |                     |
| Oct06                  |       | 34690               | 28853                  | 0                          | 5837                          | 16.8%                   |             |            | 0          | 69                           | 115                             | 577                 | 288               | 4787                  | 5768                             | 16.6%       |                      |                      |                     |                     |
| Nov06                  | 02/14 | 37760               | 32908                  | 0                          | 4852                          | 12.8%                   |             |            | 0          | 76                           | 96                              | 478                 | 239               | 3964                  | 4776                             | 12.6%       |                      |                      |                     |                     |
| Dec06                  |       | 30520               | 41219                  | 0                          | -10699                        | -35.1%                  |             |            | 0          | 61                           | -215                            | -1076               | -538              | -8931                 | -10760                           | -35.3%      |                      |                      |                     |                     |
| Jan07                  |       | 56280               | 38264                  | 0                          | 20016                         | 34.3%                   |             |            | 0          | 117                          | 398                             | 1990                | 995               | 16517                 | 19899                            | 34.1%       |                      |                      |                     |                     |
| Feb07                  |       | 49260               | 22666                  | 0                          | 25594                         | 54.0%                   |             |            | 0          | 99                           | 530                             | 2650                | 1325              | 21991                 | 26495                            | 53.8%       |                      |                      |                     |                     |
| Mrt07                  |       | 42610               | 38105                  | 0                          | 4505                          | 10.8%                   |             |            | 0          | 85                           | 88                              | 442                 | 221               | 3668                  | 4420                             | 10.4%       |                      |                      |                     |                     |
| Apr07                  | 03/15 | 46740               | 55237                  | 0                          | -8497                         | -18.2%                  |             |            | 0          | 93                           | -172                            | -859                | -430              | -7130                 | -8591                            | -18.4%      |                      |                      |                     |                     |
| May07                  |       | 34400               | 27963                  | 0                          | 6437                          | 18.7%                   |             |            | 0          | 69                           | 127                             | 637                 | 318               | 5286                  | 6369                             | 18.5%       |                      |                      |                     |                     |
| Jun07                  |       | 31610               | 26452                  | 0                          | 5158                          | 16.3%                   |             |            | 0          | 63                           | 102                             | 509                 | 255               | 4229                  | 5095                             | 16.1%       |                      |                      |                     |                     |
| Jul07                  |       | 32420               | 26399                  | 0                          | 6021                          | 18.8%</                 |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |

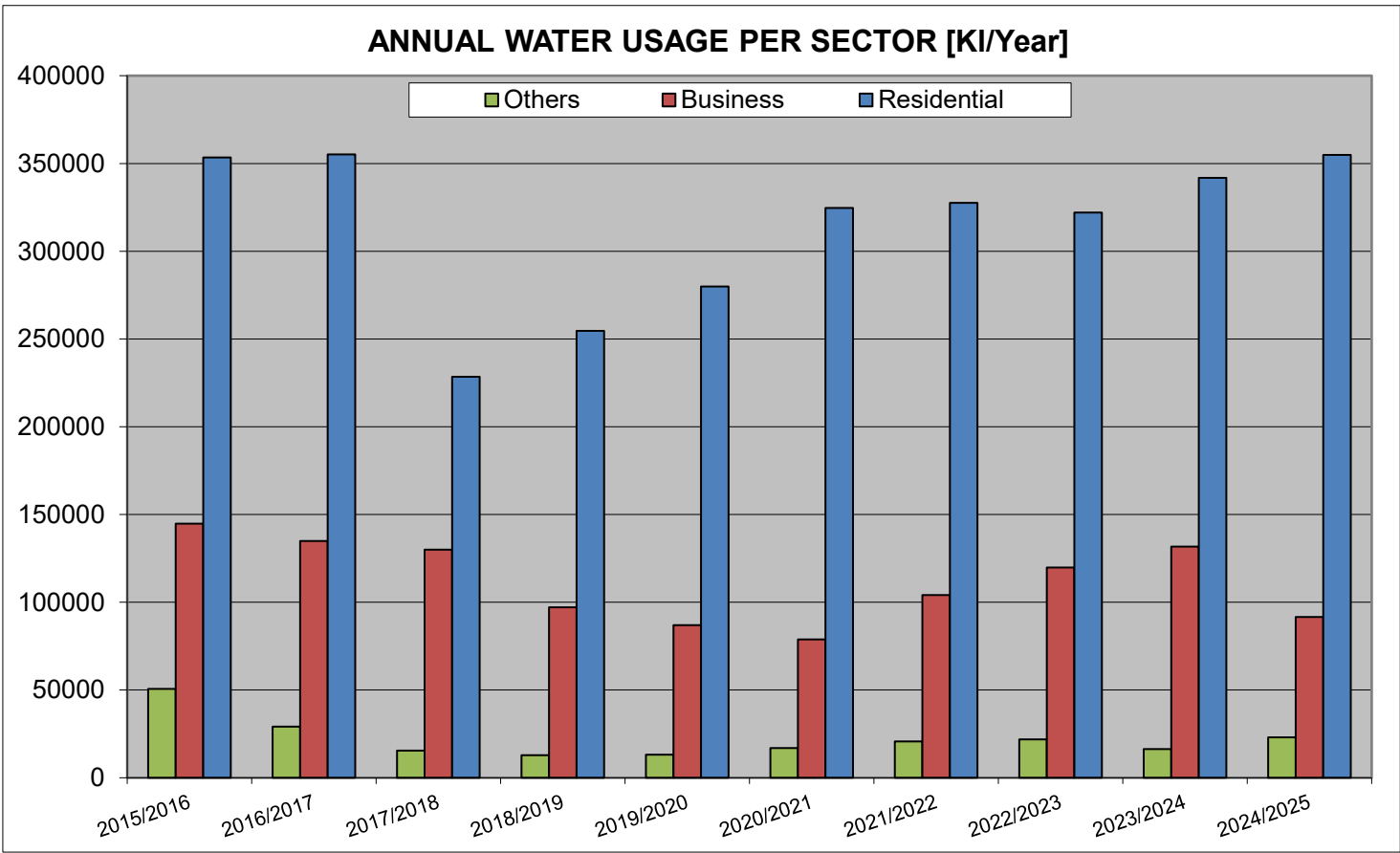
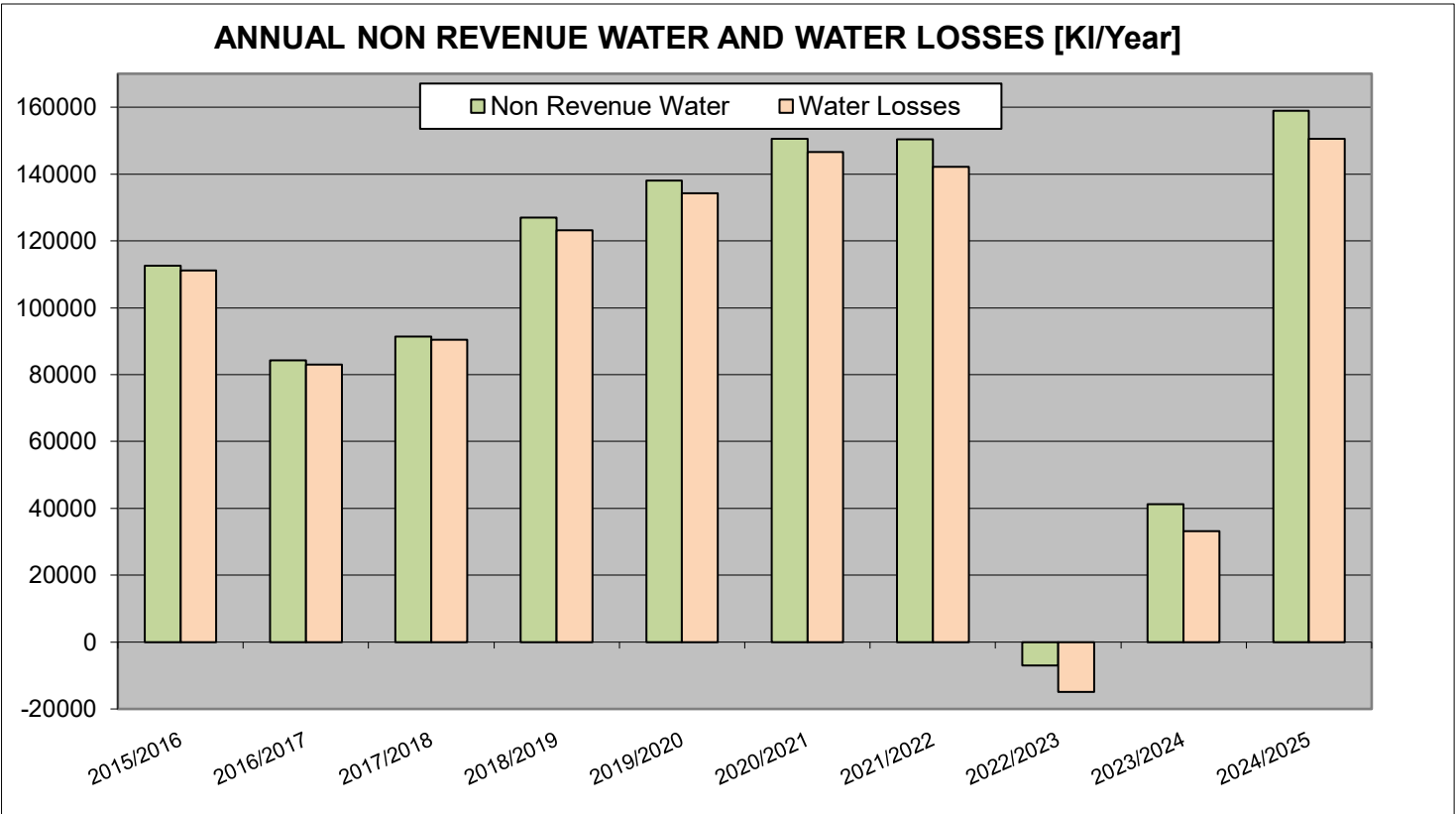
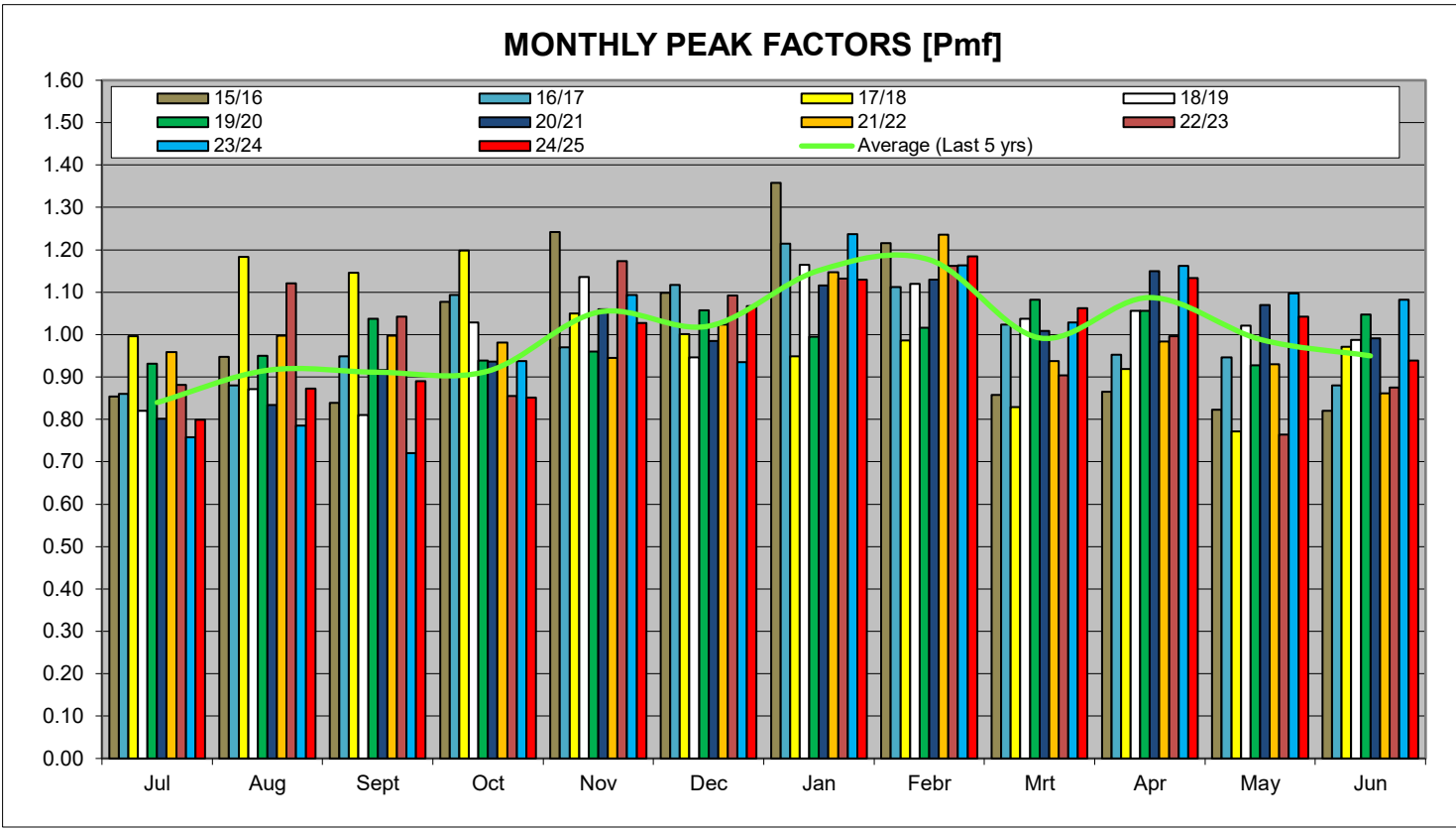
| SWARTLAND MUNICIPALITY |       |                        |                            |                               |             |                      |            |            |                              |                     |                         |                   |                       |                                  |                      |                      |                     |                     |
|------------------------|-------|------------------------|----------------------------|-------------------------------|-------------|----------------------|------------|------------|------------------------------|---------------------|-------------------------|-------------------|-----------------------|----------------------------------|----------------------|----------------------|---------------------|---------------------|
| Darling                |       |                        |                            |                               |             |                      |            |            |                              |                     |                         |                   |                       |                                  |                      |                      |                     |                     |
| Month                  | Year  | System Input Volume    |                            | Revenue Water                 |             | TREATED WATER SUPPLY |            |            |                              |                     |                         |                   |                       |                                  |                      |                      |                     |                     |
|                        |       | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW          | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered | Non Revenue Water (NRW) |                   |                       |                                  | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |
|                        |       |                        |                            |                               |             |                      |            |            |                              |                     | Illegal Connections     | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |                      |                      |                     |                     |
| Jul14                  | 14/15 | 45077                  | 31945                      | 0                             | 13132       | 29.1%                |            |            | 0                            | 90                  | 261                     | 1304              | 652                   | 10825                            | 13042                | 28.9%                | 71155               | 10.2%               |
| Aug14                  |       | 46654                  | 36871                      | 0                             | 9793        | 21.0%                |            |            | 0                            | 93                  | 194                     | 970               | 485                   | 8051                             | 9700                 | 20.8%                |                     |                     |
| Sep14                  |       | 48909                  | 44627                      | 0                             | 4282        | 8.8%                 |            |            | 0                            | 98                  | 84                      | 418               | 209                   | 3473                             | 4184                 | 8.6%                 |                     |                     |
| Oct14                  |       | 53102                  | 56228                      | 0                             | -3126       | -5.9%                |            |            | 0                            | 106                 | -65                     | -323              | -162                  | -2683                            | -3232                | -6.1%                |                     |                     |
| Nov14                  |       | 61350                  | 54152                      | 0                             | 7198        | 11.7%                |            |            | 0                            | 123                 | 142                     | 708               | 354                   | 5872                             | 7075                 | 11.5%                |                     |                     |
| Dec14                  |       | 66277                  | 60530                      | 0                             | 5747        | 8.7%                 |            |            | 0                            | 133                 | 112                     | 561               | 281                   | 4660                             | 5614                 | 8.5%                 |                     |                     |
| Jan15                  |       | 72036                  | 75671                      | 0                             | -3635       | -5.0%                |            |            | 0                            | 144                 | -76                     | -378              | -189                  | -3137                            | -3779                | -5.2%                |                     |                     |
| Feb15                  |       | 68296                  | 53315                      | 0                             | 14981       | 21.9%                |            |            | 0                            | 137                 | 297                     | 1484              | 742                   | 12321                            | 14844                | 21.7%                |                     |                     |
| Mar15                  |       | 66276                  | 58413                      | 0                             | 7863        | 11.9%                |            |            | 0                            | 133                 | 155                     | 773               | 387                   | 6416                             | 7730                 | 11.7%                |                     |                     |
| Apr15                  |       | 71811                  | 54412                      | 0                             | 17399       | 24.2%                |            |            | 0                            | 144                 | 345                     | 1726              | 863                   | 14322                            | 17255                | 24.0%                |                     |                     |
| May15                  |       | 52843                  | 47087                      | 0                             | 5756        | 10.9%                |            |            | 0                            | 106                 | 113                     | 565               | 283                   | 4690                             | 5650                 | 10.7%                |                     |                     |
| Jun15                  |       | 46738                  | 53574                      | 0                             | -6836       | -14.8%               |            |            | 0                            | 93                  | -139                    | -693              | -346                  | -5751                            | -6929                | -14.8%               |                     |                     |
| Jul15                  | 15/16 | 47034                  | 35669                      | 0                             | 11365       | 24.2%                |            |            | 0                            | 94                  | 225                     | 1127              | 564                   | 9355                             | 11271                | 24.0%                | 111193              | 16.8%               |
| Aug15                  |       | 52242                  | 38085                      | 0                             | 14157       | 27.1%                |            |            | 0                            | 104                 | 281                     | 1405              | 703                   | 11664                            | 14053                | 26.9%                |                     |                     |
| Sep15                  |       | 46252                  | 42901                      | 0                             | 3351        | 7.2%                 |            |            | 0                            | 93                  | 65                      | 326               | 163                   | 2705                             | 3258                 | 7.0%                 |                     |                     |
| Oct15                  |       | 59366                  | 45974                      | 0                             | 13392       | 22.6%                |            |            | 0                            | 119                 | 265                     | 1327              | 664                   | 11017                            | 13273                | 22.4%                |                     |                     |
| Nov15                  |       | 68458                  | 63354                      | 0                             | 5104        | 7.5%                 |            |            | 0                            | 137                 | 99                      | 497               | 248                   | 4123                             | 4967                 | 7.3%                 |                     |                     |
| Dec15                  |       | 60568                  | 56288                      | 0                             | 4280        | 7.1%                 |            |            | 0                            | 121                 | 83                      | 416               | 208                   | 3452                             | 4159                 | 6.9%                 |                     |                     |
| Jan16                  |       | 74826                  | 63308                      | 0                             | 11518       | 15.4%                |            |            | 0                            | 150                 | 227                     | 1137              | 588                   | 9436                             | 11368                | 15.2%                |                     |                     |
| Feb16                  |       | 67014                  | 54734                      | 0                             | 12280       | 18.3%                |            |            | 0                            | 134                 | 243                     | 1215              | 607                   | 10081                            | 12146                | 18.1%                |                     |                     |
| Mar16                  |       | 47285                  | 29243                      | 0                             | 18042       | 38.2%                |            |            | 0                            | 95                  | 359                     | 1795              | 897                   | 14896                            | 17947                | 38.0%                |                     |                     |
| Apr16                  |       | 47685                  | 38967                      | 0                             | 8718        | 18.3%                |            |            | 0                            | 95                  | 172                     | 862               | 431                   | 7157                             | 8623                 | 18.1%                |                     |                     |
| May16                  |       | 45373                  | 47242                      | 0                             | -1869       | -4.1%                |            |            | 0                            | 91                  | -39                     | -196              | -98                   | -1827                            | -1960                | -4.3%                |                     |                     |
| Jun16                  |       | 45227                  | 33049                      | 0                             | 12178       | 26.9%                |            |            | 0                            | 90                  | 242                     | 1209              | 604                   | 10033                            | 12088                | 26.7%                |                     |                     |
| Jul16                  | 16/17 | 43234                  | 33800                      | 0                             | 9434        | 21.8%                |            |            | 0                            | 86                  | 187                     | 935               | 467                   | 7758                             | 9348                 | 21.6%                | 83012               | 13.8%               |
| Aug16                  |       | 44243                  | 44262                      | 0                             | -19         | 0.0%                 |            |            | 0                            | 88                  | -2                      | -11               | -5                    | -89                              | -107                 | -0.2%                |                     |                     |
| Sep16                  |       | 47703                  | 46079                      | 0                             | 1624        | 3.4%                 |            |            | 0                            | 95                  | 31                      | 153               | 76                    | 1269                             | 1529                 | 3.2%                 |                     |                     |
| Oct16                  |       | 55002                  | 36664                      | 0                             | 18338       | 33.3%                |            |            | 0                            | 110                 | 365                     | 1823              | 911                   | 15129                            | 18228                | 33.3%                |                     |                     |
| Nov16                  |       | 48785                  | 38016                      | 0                             | 10769       | 22.1%                |            |            | 0                            | 98                  | 213                     | 1067              | 534                   | 8857                             | 10769                | 22.1%                |                     |                     |
| Dec16                  |       | 56194                  | 50660                      | 0                             | 5534        | 9.8%                 |            |            | 0                            | 112                 | 108                     | 542               | 271                   | 4500                             | 5422                 | 9.6%                 |                     |                     |
| Jan17                  |       | 61083                  | 48778                      | 0                             | 12305       | 20.1%                |            |            | 0                            | 122                 | 244                     | 1218              | 609                   | 10112                            | 12183                | 19.9%                |                     |                     |
| Feb17                  |       | 55958                  | 61940                      | 0                             | -5992       | -10.7%               |            |            | 0                            | 112                 | -122                    | -609              | -305                  | -5058                            | -6094                | -10.9%               |                     |                     |
| Mar17                  |       | 51488                  | 34045                      | 0                             | 17443       | 33.9%                |            |            | 0                            | 103                 | 347                     | 1734              | 867                   | 14392                            | 17340                | 33.7%                |                     |                     |
| Apr17                  |       | 47895                  | 47307                      | 0                             | 588         | 1.2%                 |            |            | 0                            | 96                  | 10                      | 49                | 25                    | 409                              | 492                  | 1.0%                 |                     |                     |
| May17                  |       | 47612                  | 38178                      | 0                             | 9434        | 19.8%                |            |            | 0                            | 95                  | 187                     | 934               | 467                   | 7751                             | 9339                 | 19.6%                |                     |                     |
| Jun17                  |       | 44245                  | 39494                      | 0                             | 4751        | 10.7%                |            |            | 0                            | 88                  | 93                      | 466               | 233                   | 3870                             | 4663                 | 10.5%                |                     |                     |
| Jul17                  | 17/18 | 38620                  | 33814                      | 0                             | 4806        | 12.4%                |            |            | 0                            | 77                  | 95                      | 473               | 236                   | 3925                             | 4729                 | 12.2%                | 90466               | 19.4%               |
| Aug17                  |       | 45873                  | 25778                      | 0                             | 20095       | 43.8%                |            |            | 0                            | 92                  | 400                     | 2000              | 1000                  | 16603                            | 20003                | 43.6%                |                     |                     |
| Sep17                  |       | 44440                  | 34627                      | 0                             | 9813        | 22.1%                |            |            | 0                            | 89                  | 194                     | 972               | 486                   | 8071                             | 9724                 | 21.9%                |                     |                     |
| Oct17                  |       | 46444                  | 34134                      | 0                             | 12310       | 26.5%                |            |            | 0                            | 93                  | 244                     | 1222              | 611                   | 10140                            | 12217                | 26.3%                |                     |                     |
| Nov17                  |       | 40706                  | 32549                      | 0                             | 8157        | 20.0%                |            |            | 0                            | 81                  | 162                     | 808               | 404                   | 6703                             | 8076                 | 19.8%                |                     |                     |
| Dec17                  |       | 38620                  | 34978                      | 0                             | 3842        | 9.9%                 |            |            | 0                            | 78                  | 75                      | 376               | 188                   | 3124                             | 3764                 | 9.7%                 |                     |                     |
| Jan18                  |       | 38763                  | 34642                      | 0                             | 5141        | 5.8%                 |            |            | 0                            | 74                  | 41                      | 207               | 103                   | 1716                             | 2067                 | 5.6%                 |                     |                     |
| Feb18                  |       | 39265                  | 25885                      | 0                             | 12380       | 32.4%                |            |            | 0                            | 77                  | 246                     | 1230              | 615                   | 10212                            | 12303                | 32.2%                |                     |                     |
| Mar18                  |       | 32162                  | 31260                      | 0                             | 902         | 2.8%                 |            |            | 0                            | 64                  | 17                      | 84                | 42                    | 695                              | 838                  | 2.6%                 |                     |                     |
| Apr18                  |       | 35619                  | 29198                      | 0                             | 6421        | 18.0%                |            |            | 0                            | 71                  | 127                     | 635               | 317                   | 5270                             | 6350                 | 17.8%                |                     |                     |
| May18                  |       | 29931                  | 30709                      | 0                             | -778        | -2.6%                |            |            | 0                            | 60                  | -17                     | -84               | -42                   | -695                             | -838                 | -2.8%                |                     |                     |
| Jun18                  |       | 37659                  | 26351                      | 0                             | 11308       | 30.0%                |            |            | 0                            | 75                  | 225                     | 1123              | 562                   | 9323                             | 11233                | 29.8%                |                     |                     |
| Jul18                  | 18/19 | 33584                  | 27322                      | 0                             | 6262        | 18.6%                |            |            | 0                            | 301                 | 119                     | 596               | 298                   | 4947                             | 5961                 | 17.7%                | 123212              | 25.1%               |
| Aug18                  |       | 35693                  | 28777                      | 0                             | 6916        | 19.4%                |            |            | 0                            | 305                 | 132                     | 661               | 331                   | 5487                             | 6611                 | 18.5%                |                     |                     |
| Sep18                  |       | 33202                  | 27242                      | 0                             | 5960        | 18.0%                |            |            | 0                            | 300                 | 113                     | 566               | 283                   | 4697                             | 5660                 | 17.0%                |                     |                     |
| Oct18                  |       | 42129                  | 30074                      | 0                             | 12055       | 28.6%                |            |            | 0                            | 318                 | 235                     | 1174              | 587                   | 9741                             | 11737                | 27.9%                |                     |                     |
| Nov18                  |       | 46509                  | 32253                      | 0                             | 14256       | 30.7%                |            |            | 0                            | 327                 | 279                     | 1393              | 696                   | 11561                            | 13929                | 29.9%                |                     |                     |
| Dec18                  |       | 38772                  | 29672                      | 0                             | 9100        | 23.5%                |            |            | 0                            | 312                 | 176                     | 879               | 439                   | 7294                             | 8788                 | 22.7%                |                     |                     |
| Jan19                  |       | 47685                  | 34977                      | 0                             | 12708       | 26.8%                |            |            | 0                            | 329                 | 248                     | 1238              | 619                   | 10274                            | 12379                | 26.0%                |                     |                     |
| Feb19                  |       | 45876                  | 31506                      | 0                             | 14370       | 31.3%                |            |            | 0                            | 326                 | 281                     | 1404              | 702                   | 11657                            | 14044                | 30.6%                |                     |                     |
| Mar19                  |       | 42502                  | 29448                      | 0                             | 13054       | 30.5%                |            |            | 0                            | 319                 | 255                     | 1273              | 637                   | 10570                            | 12735                | 30.0%                |                     |                     |
| Apr19                  |       | 43268                  | 30113                      | 0                             | 13155       | 30.4%                |            |            | 0                            | 321                 | 257                     | 1283              | 642                   | 10653                            | 12834                | 29.7%                |                     |                     |
| May19                  |       | 41787                  | 33655                      | 0                             | 8142        | 19.5%                |            |            | 0                            | 318                 | 156                     | 782               | 391                   | 6494                             | 7824                 | 18.7%                |                     |                     |
| Jun19                  |       | 40462                  | 29437                      | 0                             | 11025       | 27.2%                |            |            | 0                            | 315                 | 214                     | 1071              | 536                   | 8889                             | 10710                | 26.5%                |                     |                     |
| Jul19                  | 19/20 | 40233                  | 24702                      | 0                             | 15531       | 38.6%                |            |            | 0                            | 314                 | 304                     | 1522              | 761                   | 12630                            | 15217                | 37.8%                | 134234              | 25.9%               |
| Aug19                  |       | 41013                  | 31476                      | 0                             | 9537        | 23.3%                |            |            | 0                            | 316                 | 184                     | 922               | 461                   | 7653                             | 9221                 | 22.5%                |                     |                     |
| Sep19                  |       | 44784                  | 28115                      | 0                             | 16669       | 37.2%                |            |            | 0                            | 324                 | 327                     | 1635              | 817                   | 13567                            | 16345                | 36.5%                |                     |                     |
| Oct19                  |       | 40537                  | 33907                      | 0                             | 7440        | 18.4%                |            |            | 0                            | 315                 | 142                     | 712               | 356                   | 5914                             | 7125                 | 17.6%                |                     |                     |
| Nov19                  |       | 41474                  | 29338                      | 0                             | 12136       | 29.3%                |            |            | 0                            | 317                 | 236                     | 1182              | 591                   | 9810                             | 11819                | 28.5%                |                     |                     |
| Dec19                  |       | 45644                  | 33976                      | 0                             | 11668       | 25.6%                |            |            | 0                            | 325                 | 227                     | 1134              | 567                   | 9414                             | 11343                | 24.9%                |                     |                     |
| Jan20                  |       | 42959                  | 39000                      | 0                             | 3959        | 9.2%                 |            |            | 0                            | 320                 | 73                      | 364               | 182                   | 3020                             | 3639                 | 8.5%                 |                     |                     |
| Feb20                  |       | 43854                  | 35500                      | 0                             | 8354        | 19.0%                |            |            | 0                            | 322                 | 161                     | 803               | 402                   | 6667                             | 8352                 | 18.3%                |                     |                     |
| Mar20                  |       | 46717                  | 35551                      | 0                             | 11166       | 23.9%                |            |            | 0                            | 327                 | 217                     | 1084              | 542                   | 8996                             | 10839                | 23.2%                |                     |                     |
| Apr20                  |       | 45598                  | 29898                      | 0                             | 15700       | 34.4%                |            |            | 0                            | 325                 | 307                     | 1537              | 769                   | 12761                            | 15375                | 33.7%                |                     |                     |
| May20                  |       | 40069                  | 28674                      | 0                             | 11395       | 28.4%                |            |            | 0                            | 314                 | 222                     | 1108              | 554                   | 9197                             | 11081                | 27.7%                |                     |                     |
| Jun20                  |       | 45215                  | 30692                      | 0                             | 14523       | 32.1%                |            |            | 0                            | 324                 | 284                     | 1420              | 710                   | 11785                            | 14199                | 31.4%                |                     |                     |
| Jul20                  | 20/21 | 38154                  | 27709                      | 0                             | 10445       | 27.4%                |            |            | 0                            | 310                 | 203                     | 1013              | 507                   | 8412                             | 10135                | 26.6%                | 146555              | 25.7%               |
| Aug20                  |       | 39700                  | 41106                      | 0                             | -1406       | -3.5%                |            |            | 0                            | 313                 | -34                     | -172              | -86                   | -1427                            | -1720                | -4.3%                |                     |                     |
| Sep20                  |       | 43566                  | 30320                      | 0                             | 13246       | 30.4%                |            |            | 0                            | 321                 | 259                     | 1293              | 646                   | 10728                            | 12925                | 29.7%                |                     |                     |
| Oct20                  |       | 44522                  | 28862                      | 0                             | 15670       | 35.2%                |            |            | 0                            | 353                 | 303                     | 1535              | 767                   | 12736                            | 15347                | 34.5%                |                     |                     |
| Nov20                  |       | 50436                  | 33184                      | 0                             | 17252       | 34.2%                |            |            | 0                            | 335                 | 338                     | 1692              | 846                   | 14041                            | 16917                | 33.5%                |                     |                     |
| Dec20                  |       | 46871                  | 38218                      | 0                             | 8653        | 18.5%                |            |            | 0                            | 328                 | 167                     | 833               | 416                   | 6910                             | 8325                 | 17.8%                |                     |                     |
| Jan21                  |       | 53100                  | 44982                      | 0                             | 8118        | 15.8%                |            |            | 0                            | 340                 | 156                     | 778               | 389                   | 6456                             | 7778                 | 14.6%                |                     |                     |
| Feb21                  |       | 53740                  | 41645                      | 0                             | 12095       | 22.5%                |            |            | 0                            | 341                 | 235                     | 1175              | 588                   | 9755                             | 11754                | 21.9%                |                     |                     |
| Mar21                  |       | 47960                  | 32760                      | 0                             | 15230       | 31.7%                |            |            | 0                            | 319                 | 298                     | 1480              | 745                   | 12967                            | 14960                | 31.6%                |                     |                     |
| Apr21                  |       | 54710                  | 38725                      | 0                             | 14965       | 27.4%                |            |            | 0                            | 343                 | 293                     | 1454              | 732                   | 12153                            | 14642                | 26.8%                |                     |                     |
|                        |       |                        |                            |                               |             |                      |            |            |                              |                     |                         |                   |                       |                                  |                      |                      |                     |                     |

WATER BALANCE AND USAGE FOR DARLING DISTRIBUTION SYSTEM

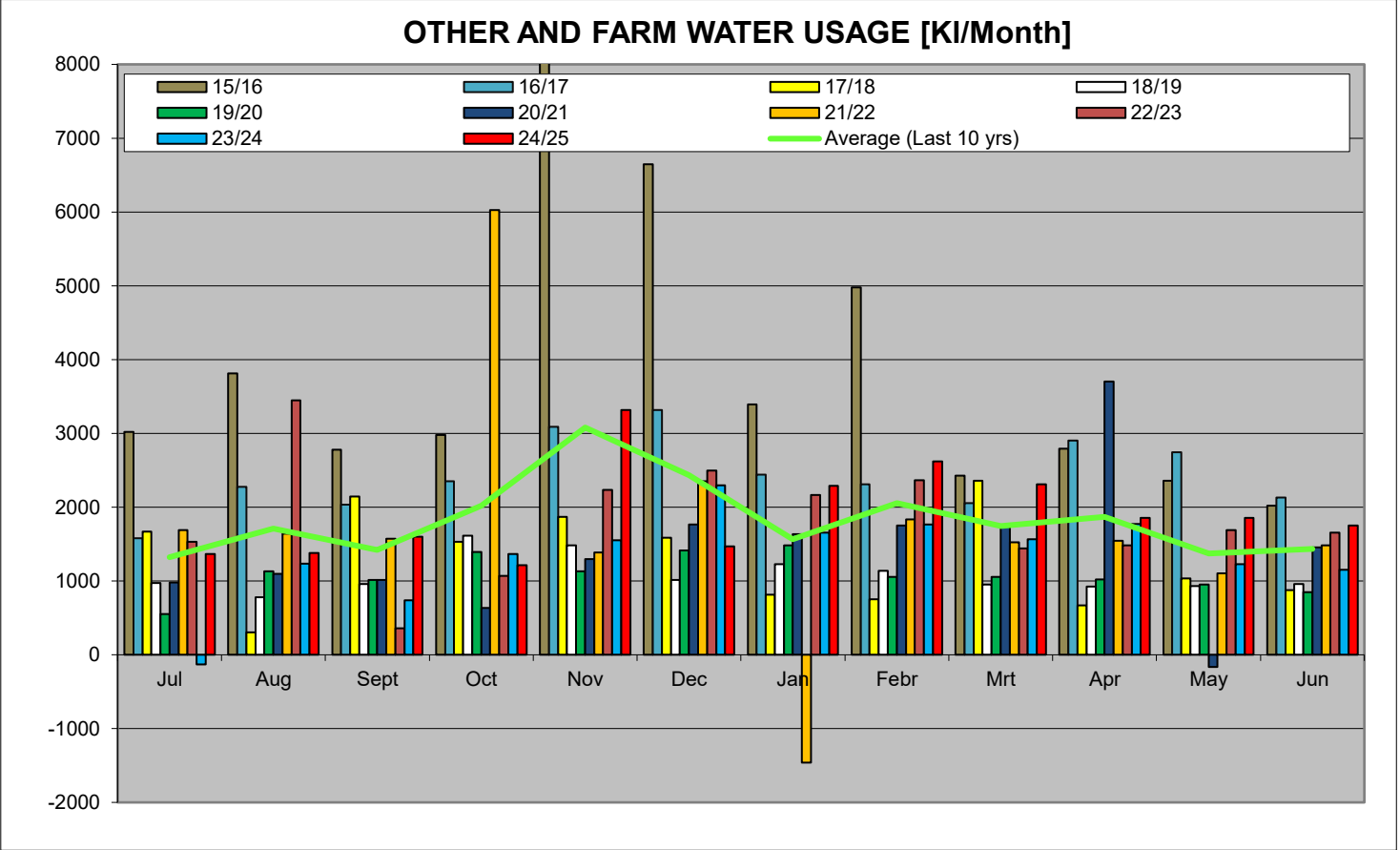
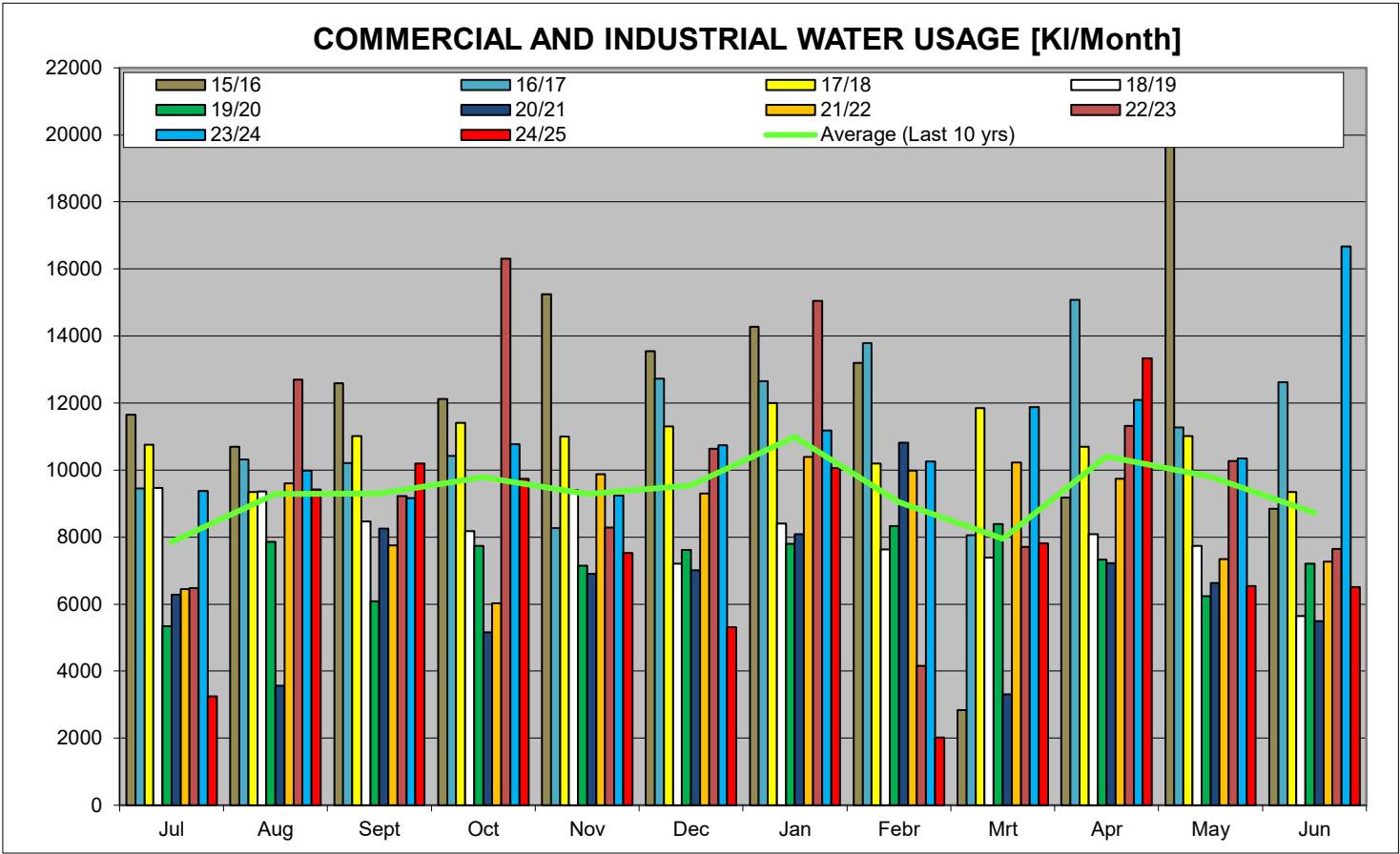
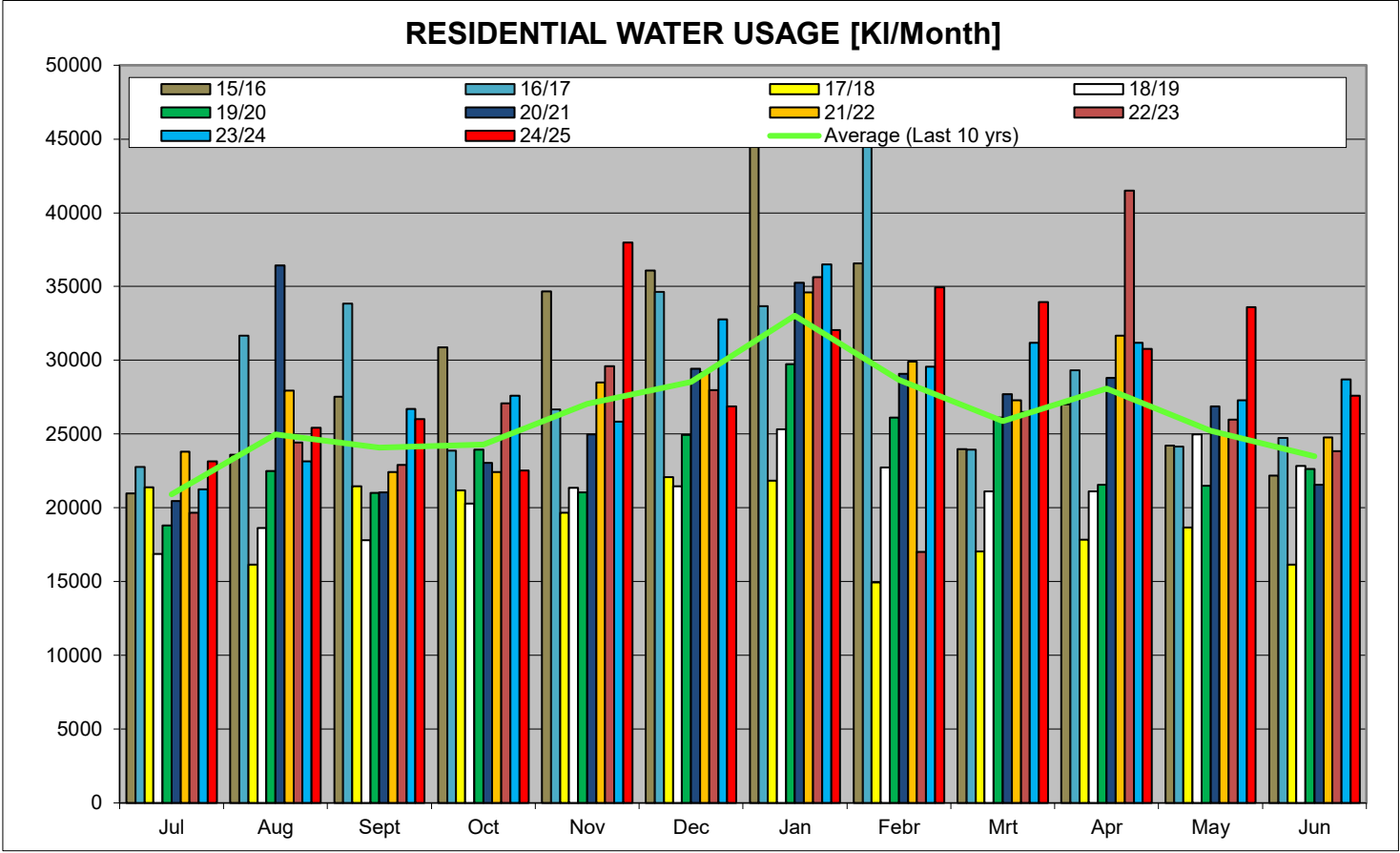




WATER BALANCE AND USAGE FOR DARLING DISTRIBUTION SYSTEM



WATER BALANCE AND USAGE FOR DARLING DISTRIBUTION SYSTEM

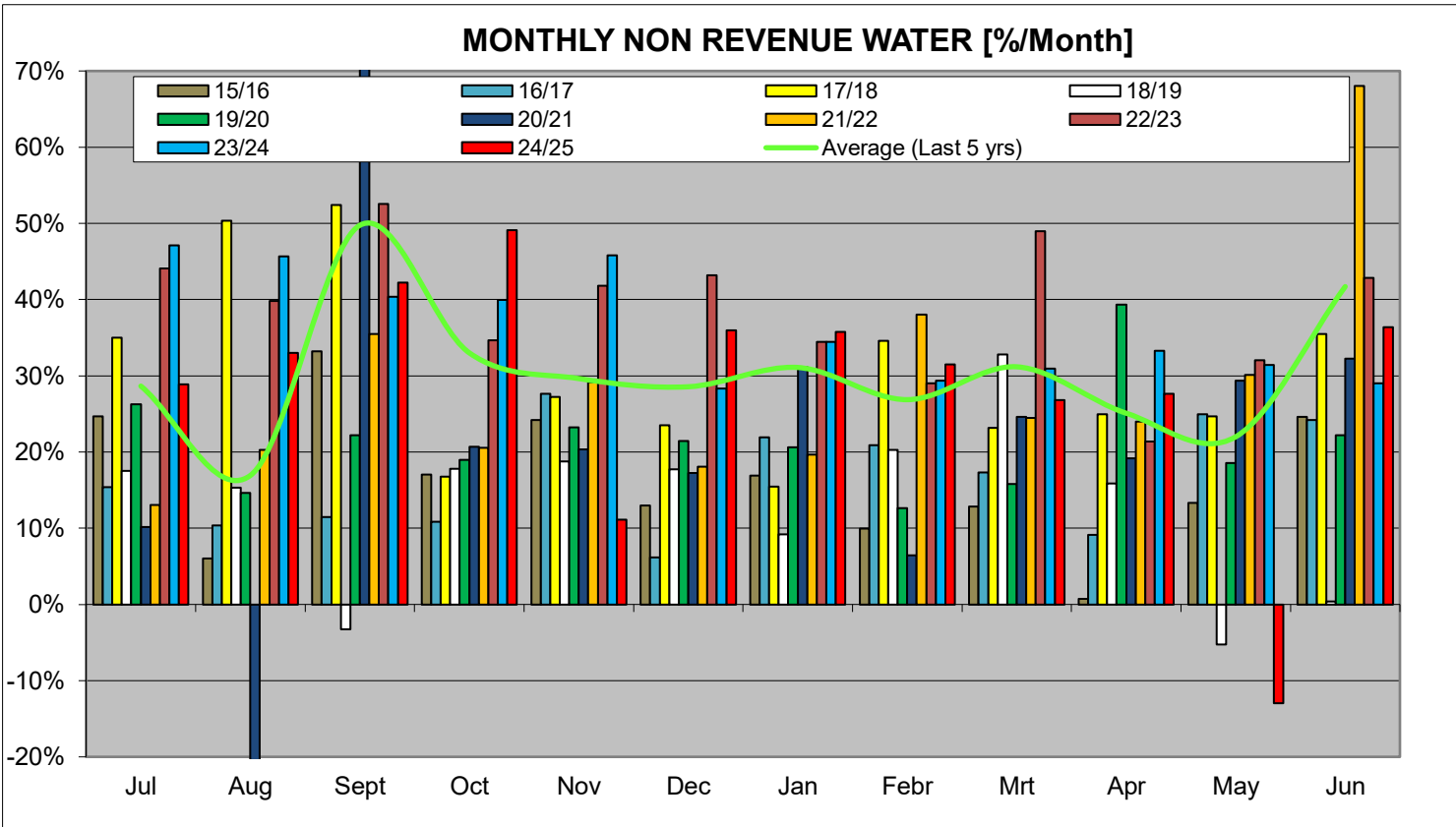
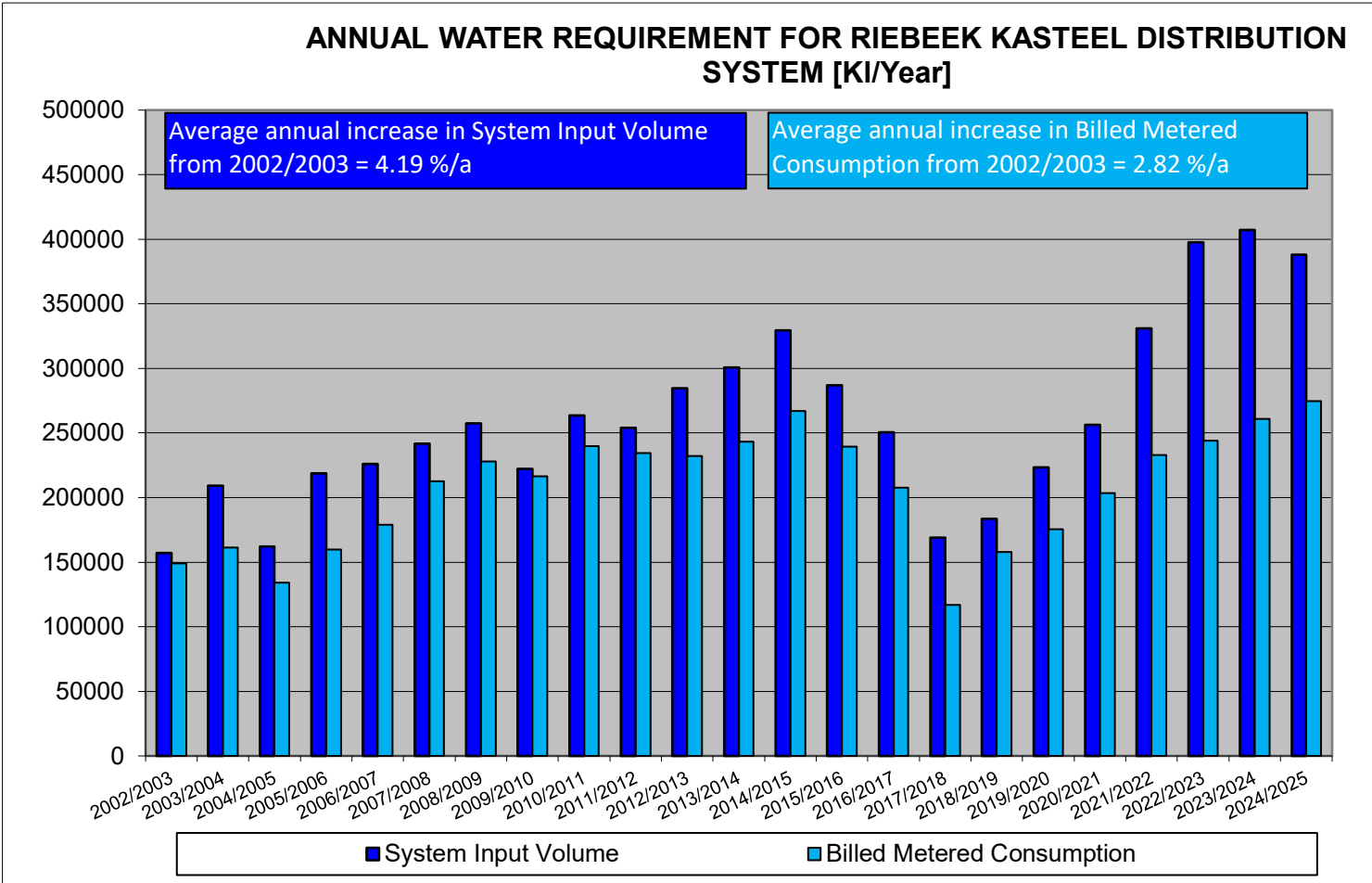
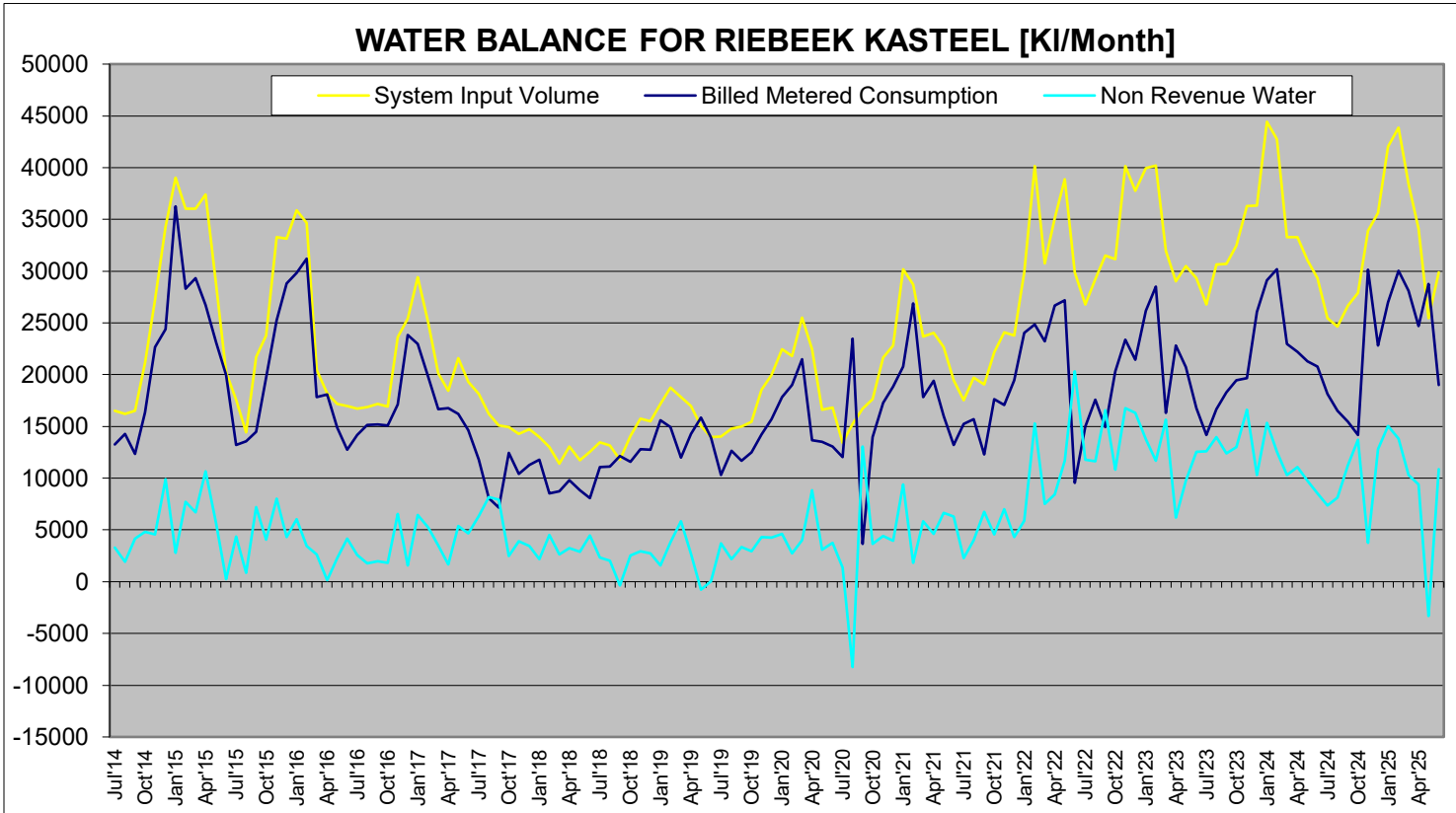


| SWARTLAND MUNICIPALITY |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
|------------------------|-------|---------------------|------------------------|----------------------------|-------------------------------|-------------|-------------------------|------------|------------|------------------------------|---------------------------------|-----------------------------------|------|-------|-------|-------------|-------------------|----------------------|----------------------|---------------------|---------------------|-----------------------|--|----------------------------------|--|
| Riebeeck Kasteel       |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| TREATED WATER SUPPLY   |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Month                  | Year  | System Input Volume | Revenue Water          |                            |                               |             | Non Revenue Water (NRW) |            |            |                              |                                 |                                   |      |       |       |             |                   | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                       |  |                                  |  |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW             | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses                   |      |       |       | Real Losses |                   |                      |                      |                     |                     |                       |  |                                  |  |
|                        |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 | Legal Connections                 |      |       |       |             | Inaccurate Meters |                      |                      |                     |                     | Administrative Errors |  | Leaks, Reservoirs overflow, etc. |  |
|                        |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 | Estimated Percentages (Variables) |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
|                        |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 | 2%                                | 10%  | 5%    | 83%   |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| [m³]                   | [m³]  | [m³]                | [m³]                   | [m³]                       | [m³]                          | [m³]        | [m³]                    | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                              | [m³] | [m³]  | [m³]  | [m³]        | [m³]              | [m³]                 |                      |                     |                     |                       |  |                                  |  |
| Jan01                  | 00/01 | 20061               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Feb01                  |       | 15367               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt01                  |       | 16989               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr01                  |       | 16349               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May01                  |       | 10331               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun01                  |       | 6207                |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul01                  |       | 6991                |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug01                  |       | 10346               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep01                  |       | 7584                |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct01                  |       | 10871               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov01                  |       | 11310               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec01                  |       | 8199                |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jan02                  | 01/02 | 14636               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Feb02                  |       | 11382               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt02                  |       | 10128               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr02                  |       | 7712                |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May02                  |       | 10331               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun02                  |       | 11443               |                        |                            |                               |             |                         |            |            |                              |                                 |                                   |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul02                  |       | 6991                | 8105                   | 0                          | -1114                         | -15.9%      |                         |            | 0          | 14                           | -23                             | -113                              | -56  | -936  | -1128 | -16.1%      |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug02                  |       | 12737               | 8107                   | 0                          | 4630                          | 36.4%       |                         |            | 0          | 25                           | 92                              | 460                               | 230  | 3822  | 4605  | 36.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep02                  |       | 12835               | 7816                   | 0                          | 5019                          | 39.1%       |                         |            | 0          | 26                           | 100                             | 499                               | 250  | 4144  | 4993  | 38.9%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct02                  |       | 9600                | 9626                   | 0                          | -326                          | -3.4%       |                         |            | 0          | 19                           | -7                              | -287                              | -345 | -576  | -5.6% |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov02                  |       | 11266               | 9843                   | 0                          | 1423                          | 12.6%       |                         |            | 0          | 28                           | 140                             | 70                                | 1162 | 1400  | 12.4% |             |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec02                  |       | 20596               | 16963                  | 0                          | 3633                          | 17.6%       |                         |            | 0          | 41                           | 72                              | 359                               | 180  | 2981  | 3592  | 17.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jan03                  | 02/03 | 15398               | 17873                  | 0                          | -2475                         | -16.1%      |                         | 8299       | 5.3%       | 31                           | -50                             | -251                              | -125 | -2080 | -2506 | -16.3%      | 7985              | 5.1%                 |                      |                     |                     |                       |  |                                  |  |
| Feb03                  |       | 18017               | 15962                  | 0                          | 2055                          | 11.4%       |                         |            | 0          | 36                           | 40                              | 202                               | 101  | 1676  | 2019  | 11.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt03                  |       | 11960               | 16732                  | 0                          | -4772                         | -56.6%      |                         |            | 0          | 24                           | -136                            | -680                              | -340 | -5641 | -4796 | -56.8%      |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr03                  |       | 11927               | 13421                  | 0                          | -1494                         | -12.9%      |                         |            | 0          | 24                           | -30                             | -152                              | -34  | -1260 | -1518 | -12.7%      |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May03                  |       | 13489               | 13095                  | 0                          | 394                           | 2.9%        |                         |            | 0          | 27                           | 7                               | 37                                | 18   | 305   | 367   | 2.7%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun03                  |       | 12399               | 9073                   | 0                          | 3326                          | 26.8%       |                         |            | 0          | 25                           | 66                              | 330                               | 165  | 2740  | 3301  | 26.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul03                  |       | 11233               | 9668                   | 0                          | 1565                          | 13.9%       |                         |            | 0          | 22                           | 31                              | 154                               | 77   | 1280  | 1543  | 13.7%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug03                  |       | 8989                | 7115                   | 0                          | 1874                          | 20.8%       |                         |            | 0          | 18                           | 37                              | 186                               | 93   | 1540  | 1656  | 20.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep03                  |       | 11608               | 8870                   | 0                          | 2738                          | 23.6%       |                         |            | 0          | 23                           | 54                              | 271                               | 138  | 2253  | 2715  | 23.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct03                  |       | 12126               | 8139                   | 0                          | 3987                          | 32.9%       |                         |            | 0          | 24                           | 79                              | 396                               | 198  | 3289  | 3963  | 32.7%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov03                  |       | 14745               | 14055                  | 0                          | 690                           | 4.7%        |                         |            | 0          | 29                           | 13                              | 66                                | 33   | 548   | 661   | 4.5%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec03                  |       | 21362               | 13556                  | 0                          | 7806                          | 36.5%       |                         |            | 0          | 43                           | 155                             | 776                               | 388  | 6444  | 7763  | 36.3%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jan04                  | 03/04 | 21788               | 20595                  | 0                          | 1193                          | 5.5%        |                         | 47861      | 22.9%      | 44                           | 23                              | 115                               | 57   | 964   | 1149  | 5.3%        | 47443             | 22.7%                |                      |                     |                     |                       |  |                                  |  |
| Feb04                  |       | 30782               | 41809                  | 0                          | 12873                         | 41.8%       |                         |            | 0          | 62                           | 256                             | 1281                              | 641  | 10633 | 12811 | 41.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt04                  |       | 18107               | 18286                  | 0                          | -179                          | -1.0%       |                         |            | 0          | 36                           | -4                              | -22                               | -11  | -179  | -215  | -1.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr04                  |       | 22899               | 15787                  | 0                          | 7112                          | 31.1%       |                         |            | 0          | 46                           | 141                             | 707                               | 353  | 5865  | 7086  | 30.9%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May04                  |       | 19722               | 14504                  | 0                          | 5218                          | 26.5%       |                         |            | 0          | 39                           | 104                             | 518                               | 259  | 4298  | 5179  | 26.3%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun04                  |       | 15781               | 12797                  | 0                          | 2984                          | 18.9%       |                         |            | 0          | 32                           | 59                              | 295                               | 148  | 2451  | 2952  | 18.7%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul04                  |       | 11681               | 9070                   | 0                          | 2591                          | 22.7%       |                         |            | 0          | 23                           | 257                             | 123                               | 123  | 2131  | 2568  | 22.0%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug04                  |       | 10638               | 8862                   | 0                          | 1774                          | 16.7%       |                         |            | 0          | 21                           | 35                              | 175                               | 88   | 1455  | 1753  | 16.5%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep04                  |       | 10171               | 10539                  | 0                          | -368                          | -3.6%       |                         |            | 0          | 20                           | -8                              | -39                               | -19  | -322  | -388  | -3.8%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct04                  |       | 8875                | 10343                  | 0                          | -1468                         | -16.5%      |                         |            | 0          | 18                           | -30                             | -149                              | -74  | -1233 | -1486 | -16.7%      |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov04                  |       | 17793               | 10712                  | 0                          | 7081                          | 39.8%       |                         |            | 0          | 36                           | 141                             | 705                               | 352  | 5848  | 7045  | 39.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec04                  |       | 16599               | 13726                  | 0                          | 2863                          | 17.2%       |                         |            | 0          | 33                           | 283                             | 141                               | 239  | 3783  | 4533  | 17.0%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jan05                  | 04/05 | 16633               | 14423                  | 0                          | 2210                          | 13.3%       |                         | 28098      | 17.3%      | 33                           | 44                              | 218                               | 109  | 1807  | 2177  | 13.1%       | 27773             | 17.1%                |                      |                     |                     |                       |  |                                  |  |
| Feb05                  |       | 15467               | 15190                  | 0                          | 277                           | 1.8%        |                         |            | 0          | 31                           | 5                               | 25                                | 12   | 204   | 246   | 1.6%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt05                  |       | 13773               | 11842                  | 0                          | 1931                          | 14.0%       |                         |            | 0          | 28                           | 38                              | 190                               | 95   | 1580  | 1903  | 13.8%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr05                  |       | 15010               | 12511                  | 0                          | 2499                          | 16.6%       |                         |            | 0          | 30                           | 49                              | 247                               | 123  | 2049  | 2469  | 16.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May05                  |       | 12043               | 8712                   | 0                          | 3311                          | 27.5%       |                         |            | 0          | 24                           | 164                             | 329                               | 164  | 2728  | 3291  | 27.3%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun05                  |       | 13593               | 8196                   | 0                          | 5397                          | 39.7%       |                         |            | 0          | 27                           | 107                             | 537                               | 268  | 4457  | 5370  | 39.5%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul05                  |       | 9440                | 8699                   | 0                          | 741                           | 7.8%        |                         |            | 0          | 19                           | 14                              | 72                                | 36   | 599   | 722   | 7.6%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug05                  |       | 15053               | 8204                   | 0                          | 6849                          | 45.5%       |                         |            | 0          | 30                           | 136                             | 682                               | 341  | 5660  | 6819  | 45.3%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep05                  |       | 14595               | 83608                  | 0                          | 6234                          | 42.7%       |                         |            | 0          | 29                           | 124                             | 621                               | 310  | 5150  | 6205  | 42.5%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct05                  |       | 19150               | 10193.37               | 0                          | 9041                          | 47.2%       |                         |            | 0          | 38                           | 450                             | 900                               | 450  | 7472  | 9002  | 47.0%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov05                  |       | 21700               | 12011.83               | 0                          | 9688                          | 44.6%       |                         |            | 0          | 43                           | 193                             | 964                               | 482  | 8005  | 9645  | 44.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec05                  |       | 14293               | 17032                  | 0                          | -2739                         | -19.2%      |                         |            | 0          | 29                           | -55                             | -277                              | -138 | -2297 | -2768 | -19.4%      | 58223             | 26.6%                |                      |                     |                     |                       |  |                                  |  |
| Jan06                  | 05/06 | 21695               | 18796                  | 0                          | 2899                          | 13.4%       |                         |            | 0          | 43                           | 57                              | 286                               | 143  | 2370  | 2855  | 13.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Feb06                  |       | 25621               | 21338                  | 0                          | 4283                          | 16.7%       |                         |            | 0          | 51                           | 85                              | 423                               | 212  | 3513  | 4237  | 16.5%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt06                  |       | 19136               | 16033                  | 0                          | 2603                          | 13.1%       |                         |            | 0          | 28                           | 49                              | 247                               | 123  | 2049  | 2469  | 16.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr06                  |       | 20568               | 17034                  | 0                          | 3534                          | 17.2%       |                         |            | 0          | 41                           | 70                              | 349                               | 175  | 2899  | 3493  | 17.0%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May06                  |       | 23071               | 11331                  | 0                          | 11740                         | 50.9%       |                         |            | 0          | 46                           | 234                             | 1169                              | 585  | 9706  | 11694 | 50.7%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun06                  |       | 14329               | 10442                  | 0                          | 3887                          | 27.1%       |                         |            | 0          | 29                           | 77                              | 386                               | 193  | 3202  | 3858  | 26.9%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul06                  |       | 13526               | 9904                   | 0                          | 3622                          | 26.8%       |                         |            | 0          | 27                           | 72                              | 359                               | 180  | 2984  | 3595  | 26.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug06                  |       | 13092               | 9650                   | 0                          | 3442                          | 26.3%       |                         |            | 0          | 28                           | 68                              | 342                               | 171  | 2835  | 3416  | 26.1%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep06                  |       | 13964               | 9719                   | 0                          | 4245                          | 30.4%       |                         |            | 0          | 28                           | 84                              | 422                               | 211  | 3500  | 4217  | 30.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct06                  |       | 18837               | 11422                  | 0                          | 7415                          | 39.4%       |                         |            | 0          | 38                           | 148                             | 738                               | 369  | 6123  | 7377  | 39.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov06                  |       | 26663               | 12976                  | 0                          | 13687                         | 51.3%       |                         |            | 0          | 53                           | 273                             | 1363                              | 682  | 11316 | 13633 | 51.1%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec06                  |       | 13883               | 19128                  | 0                          | -5245                         | -37.8%      |                         |            | 0          | 28                           | -105                            | -527                              | -264 | -4376 | -5273 | -38.0%      | 46591             | 20.6%                |                      |                     |                     |                       |  |                                  |  |
| Jan07                  | 06/07 | 26360               | 10111                  | 0                          | 15628                         | 35.6%       |                         |            | 0          | 57                           | 201                             | 1005                              | 503  | 8345  | 10054 | 35.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Feb07                  |       | 24962               | 21430                  | 0                          | 3532                          | 14.1%       |                         |            | 0          | 50                           | 70                              | 348                               | 174  | 2890  | 3482  | 13.9%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt07                  |       | 20932               | 16732                  | 0                          | 4200                          | 20.1%       |                         |            | 0          | 42                           | 83                              | 416                               | 208  | 3452  | 4158  | 19.9%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr07                  |       | 22863               | 21257                  | 0                          | 1606                          | 7.0%        |                         |            | 0          | 46                           | 31                              | 156                               | 78   | 1295  | 1560  | 6.8%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May07                  |       | 15886               | 14167                  | 0                          | 1719                          | 10.8%       |                         |            | 0          | 32                           | 34                              | 169                               | 84   | 1400  | 1687  | 10.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun07                  |       | 13101               | 14471                  | 0                          | -1270                         | -8.9%       |                         |            | 0          | 26                           | -26                             | -132                              | -66  | -1093 | -1316 | -10.6%      |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul07                  |       | 13127               | 10769                  | 0                          | 2358                          | 18.0%       |                         |            | 0          | 26                           | 47                              | 233                               | 117  | 1935  | 2332  | 17.8%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug07                  |       | 12606               | 12930                  | 0                          | -324                          | -2.6%       |                         |            | 0          | 25                           | -47                             | -35                               | -17  | -290  | -349  | -2.8%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep07                  |       | 12759               | 11812                  | 0                          | 947                           | 7.4%        |                         |            | 0          | 26                           | 18                              | 92                                | 46   | 765   | 921   | 7.2%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct07                  |       | 17466               | 14399                  | 0                          | 3067                          | 17.6%       |                         |            | 0          | 35                           | 61                              | 303                               | 152  | 2517  | 3032  | 17.4%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Nov07                  |       | 19876               | 10976                  | 0                          | 1094                          | 5.5%        |                         |            | 0          | 40                           | 51                              | 106                               | 53   | 875   | 1066  | 5.3%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Dec07                  |       | 22796               | 20357                  | 0                          | 2439                          | 10.7%       |                         |            | 0          | 46                           | 48                              | 239                               | 120  | 1986  | 2393  | 10.5%       | 28573             | 11.8%                |                      |                     |                     |                       |  |                                  |  |
| Jan08                  | 07/08 | 27845               | 21317                  | 0                          | 6528                          | 23.4%       |                         |            | 0          | 56                           | 129                             | 647                               | 324  | 5372  | 6472  | 23.2%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Feb08                  |       | 30099               | 27233                  | 0                          | 2866                          | 9.5%        |                         |            | 0          | 60                           | 56                              | 281                               | 140  | 2329  | 2806  | 9.3%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Mrt08                  |       | 26287               | 23852                  | 0                          | 2435                          | 9.3%        |                         |            | 0          | 53                           | 48                              | 238                               | 119  | 1977  | 2382  | 9.1%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Apr08                  |       | 22769               | 20577                  | 0                          | 1592                          | 7.2%        |                         |            | 0          | 44                           | 71                              | 155                               | 74   | 1285  | 1548  | 7.0%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| May08                  |       | 20309               | 18944                  | 0                          | 1465                          | 7.2%        |                         |            | 0          | 41                           | 28                              | 142                               | 71   | 1182  | 1424  | 7.0%        |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jun08                  |       | 16407               | 11817                  | 0                          | 4590                          | 28.0%       |                         |            | 0          | 33                           | 91                              | 456                               | 228  | 3782  | 4557  | 27.8%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Jul08                  |       | 17730               | 24439                  | 0                          | -3709                         | -37.8%      |                         |            | 0          | 35                           | -135                            | -674                              | -337 | -5598 | -6744 | -38.0%      |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Aug08                  |       | 17502               | 12631                  | 0                          | 4871                          | 27.8%       |                         |            | 0          | 35                           | 97                              | 484                               | 242  | 4014  | 4836  | 27.6%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Sep08                  |       | 13963               | 10365                  | 0                          | 3278                          | 24.0%       |                         |            | 0          | 37                           | 65                              | 325                               | 163  | 2698  | 3251  | 23.8%       |                   |                      |                      |                     |                     |                       |  |                                  |  |
| Oct08                  |       | 12723               | 10881                  | 0                          | 1842                          | 14.5%       |                         |            | 0          | 25                           | 36                              | 182</                             |      |       |       |             |                   |                      |                      |                     |                     |                       |  |                                  |  |

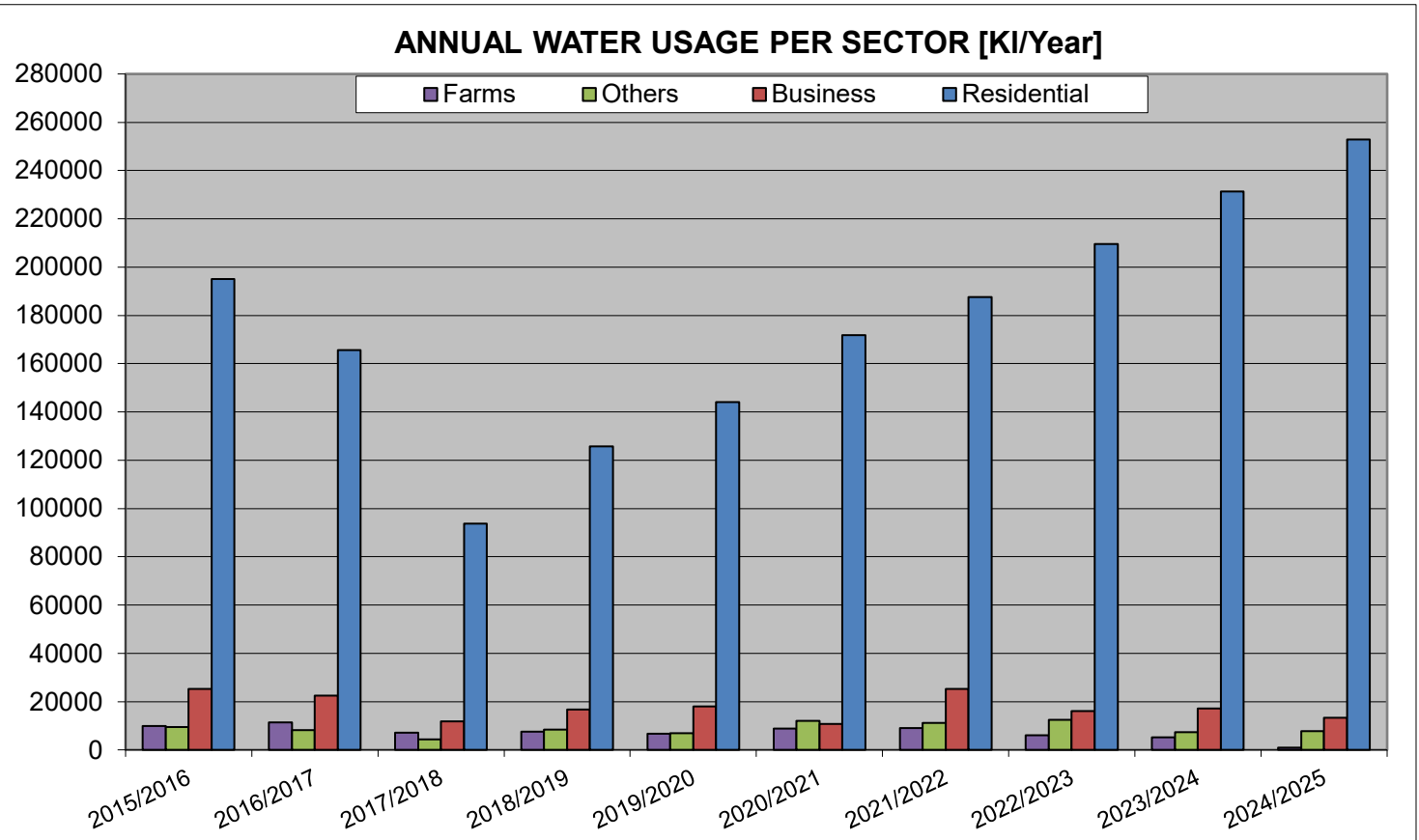
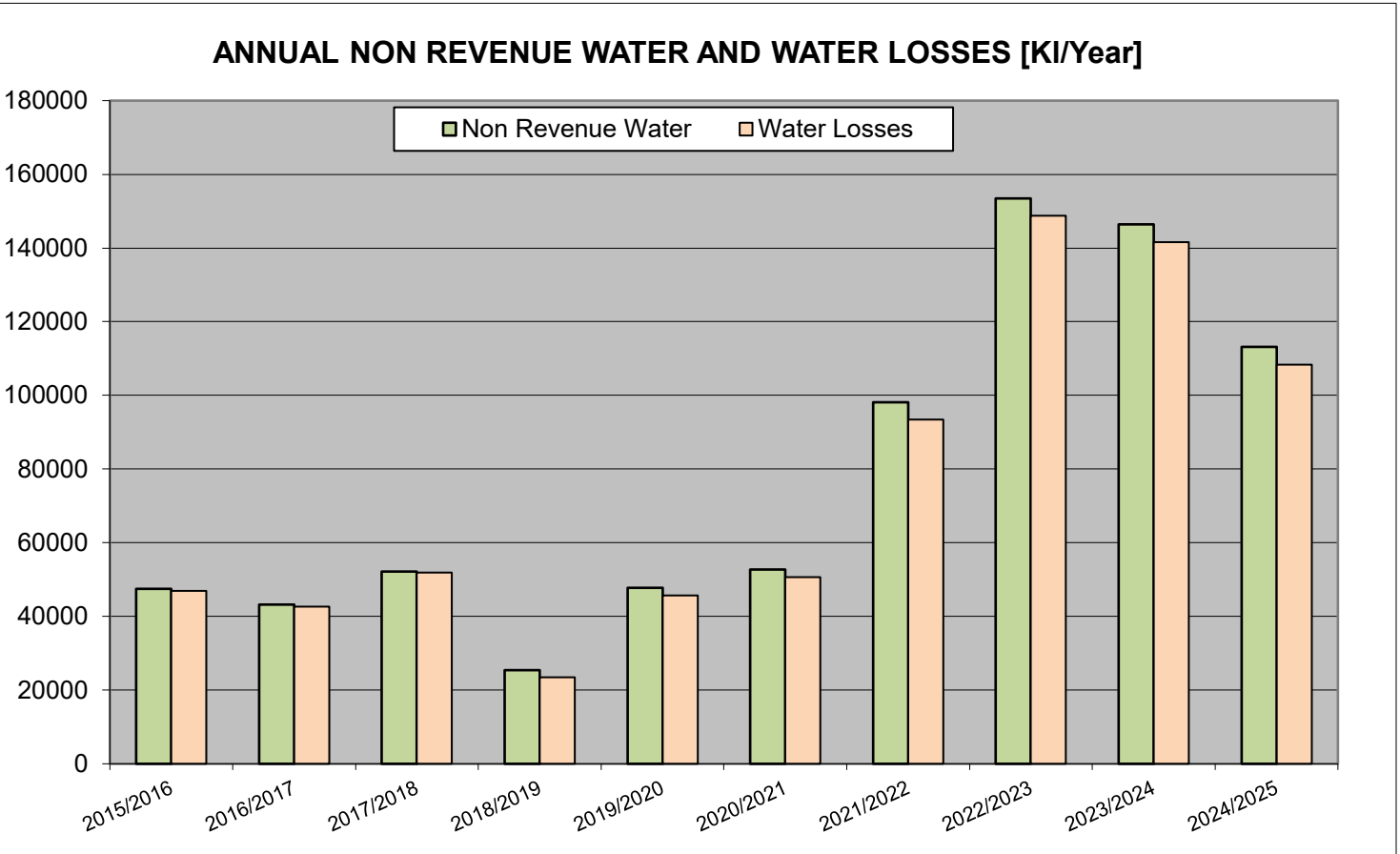
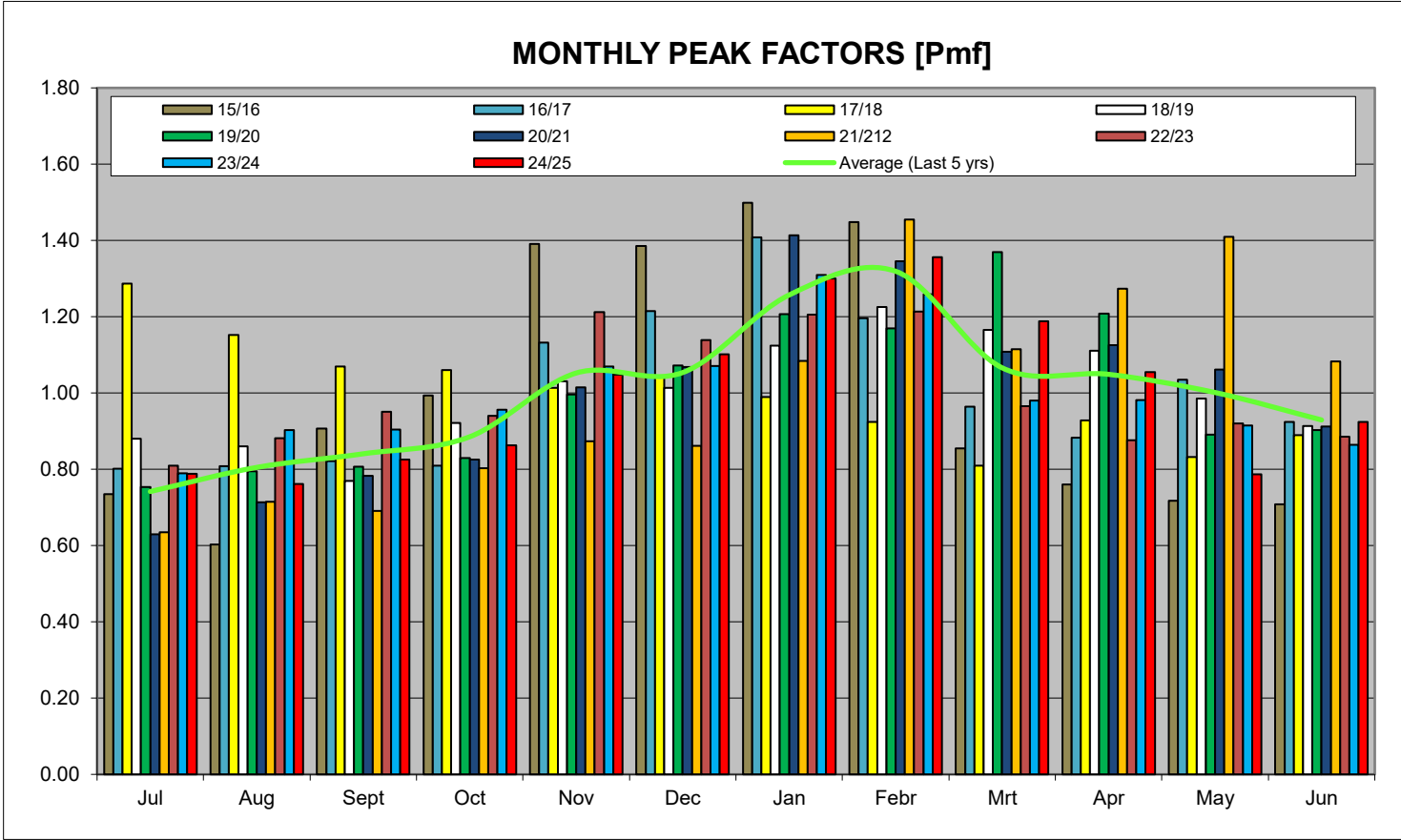


| SWARTLAND MUNICIPALITY |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
|------------------------|-------|----------------------|------------------------|----------------------------|-------------------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------|----------------------|----------------------|---------------------|----------------------|----------------------|---------------------|---------------------|---------------------|-----------------------------------|-----|----|-----|
| Riebeeck Kasteel       |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Month                  | Year  | TREATED WATER SUPPLY |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
|                        |       | System Input Volume  | Revenue Water          |                            | Non Revenue Water (NRW)       |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                     |                                   |     |    |     |
|                        |       |                      | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       | Real Losses                      |                      |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
|                        |       |                      |                        |                            |                               |             |             |            |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. | Monthly Water Losses | Monthly Water Losses | Annual Water Losses |                      |                      |                     |                     | Annual Water Losses |                                   |     |    |     |
|                        |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     |                      |                      |                     |                     |                     | Estimated Percentages (Variables) |     |    |     |
|                        |       |                      |                        |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     |                      |                      |                     |                     |                     | 2%                                | 10% | 5% | 83% |
| [m³]                   | [m³]  | [m³]                 | [m³]                   | [%]                        | [m³]                          | [%]         | [m³]        | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]                  | [m³]                             | [m³]                 | [m³]                 | [m³]                |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jul'16                 | 16/17 | 6732                 | 14161                  | 0                          | 2571                          | 15.4%       | 43154       | 17.2%      | 0          | 33                           | 51                              | 254                 | 127               | 2168                  | 2538                             | 15.2%                | 42653                | 17.0%               |                      |                      |                     |                     |                     |                                   |     |    |     |
| Aug'16                 |       | 16886                | 15130                  | 0                          | 1756                          | 10.4%       |             |            | 0          | 34                           | 34                              | 172                 | 86                | 1429                  | 1722                             | 10.2%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Sep'16                 |       | 17169                | 15197                  | 0                          | 1972                          | 11.5%       |             |            | 0          | 34                           | 39                              | 194                 | 97                | 1608                  | 1938                             | 11.3%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Oct'16                 |       | 16903                | 15068                  | 0                          | 1835                          | 10.9%       |             |            | 0          | 34                           | 36                              | 180                 | 90                | 1495                  | 1801                             | 10.7%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Nov'16                 |       | 23642                | 17110                  | 0                          | 6532                          | 27.6%       |             |            | 0          | 47                           | 130                             | 648                 | 324               | 5382                  | 6485                             | 27.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Dec'16                 |       | 25384                | 23812                  | 0                          | 1572                          | 6.2%        |             |            | 0          | 51                           | 30                              | 152                 | 76                | 1263                  | 1521                             | 6.0%                 |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jan'17                 |       | 29418                | 22973                  | 0                          | 6445                          | 21.9%       |             |            | 0          | 59                           | 128                             | 639                 | 319               | 5301                  | 6386                             | 21.7%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Feb'17                 |       | 24983                | 19756                  | 0                          | 5227                          | 20.9%       |             |            | 0          | 50                           | 104                             | 518                 | 259               | 4297                  | 5177                             | 20.7%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Mar'17                 |       | 20146                | 16659                  | 0                          | 3487                          | 17.3%       |             |            | 0          | 40                           | 69                              | 345                 | 172               | 2861                  | 3447                             | 17.1%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Apr'17                 |       | 18449                | 16863                  | 0                          | 1686                          | 9.1%        |             |            | 0          | 37                           | 33                              | 165                 | 82                | 1369                  | 1649                             | 8.9%                 |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| May'17                 |       | 21616                | 16221                  | 0                          | 5395                          | 25.0%       |             |            | 0          | 43                           | 107                             | 535                 | 268               | 4442                  | 5352                             | 24.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jun'17                 |       | 19308                | 14632                  | 0                          | 4676                          | 24.2%       |             |            | 0          | 39                           | 93                              | 464                 | 232               | 3849                  | 4637                             | 24.0%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jul'17                 | 17/18 | 18138                | 11789                  | 0                          | 6349                          | 35.0%       | 52180       | 30.9%      | 0          | 36                           | 126                             | 631                 | 316               | 5240                  | 6313                             | 34.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Aug'17                 |       | 16227                | 8055                   | 0                          | 8172                          | 50.4%       |             |            | 0          | 32                           | 163                             | 814                 | 407               | 6756                  | 8140                             | 50.2%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Sep'17                 |       | 15070                | 7166                   | 0                          | 7904                          | 52.4%       |             |            | 0          | 30                           | 157                             | 787                 | 394               | 6535                  | 7874                             | 52.2%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Oct'17                 |       | 14936                | 12434                  | 0                          | 2502                          | 16.8%       |             |            | 0          | 30                           | 49                              | 247                 | 124               | 2052                  | 2472                             | 16.6%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Nov'17                 |       | 14285                | 10399                  | 0                          | 3886                          | 27.2%       |             |            | 0          | 29                           | 77                              | 386                 | 193               | 3202                  | 3857                             | 27.0%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Dec'17                 |       | 14715                | 11259                  | 0                          | 3456                          | 23.5%       |             |            | 0          | 29                           | 69                              | 343                 | 171               | 2844                  | 3427                             | 23.3%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jan'18                 |       | 13949                | 11797                  | 0                          | 2152                          | 15.4%       |             |            | 0          | 28                           | 42                              | 212                 | 106               | 1763                  | 2124                             | 15.2%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Feb'18                 |       | 13017                | 8510                   | 0                          | 4507                          | 34.6%       |             |            | 0          | 26                           | 90                              | 448                 | 224               | 3719                  | 4481                             | 34.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Mar'18                 |       | 11401                | 8756                   | 0                          | 2645                          | 23.2%       |             |            | 0          | 23                           | 52                              | 262                 | 131               | 2176                  | 2622                             | 23.0%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Apr'18                 |       | 13067                | 9802                   | 0                          | 3265                          | 25.0%       |             |            | 0          | 26                           | 65                              | 324                 | 162               | 2688                  | 3239                             | 24.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| May'18                 |       | 11721                | 8629                   | 0                          | 2892                          | 24.7%       |             |            | 0          | 23                           | 57                              | 281                 | 143               | 2387                  | 2865                             | 24.5%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jun'18                 |       | 12535                | 8085                   | 0                          | 4450                          | 35.5%       |             |            | 0          | 25                           | 88                              | 442                 | 221               | 3673                  | 4425                             | 35.3%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jul'18                 | 18/19 | 13445                | 11091                  | 0                          | 2354                          | 17.5%       | 25377       | 13.8%      | 0          | 159                          | 44                              | 220                 | 110               | 1822                  | 2195                             | 16.3%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Aug'18                 |       | 13144                | 11131                  | 0                          | 2013                          | 15.3%       |             |            | 0          | 158                          | 37                              | 185                 | 93                | 1539                  | 1855                             | 14.1%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Sep'18                 |       | 11766                | 12150                  | 0                          | -384                          | -3.3%       |             |            | 0          | 156                          | -11                             | -54                 | -27               | -448                  | -540                             | -4.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Oct'18                 |       | 14083                | 11572                  | 0                          | 2511                          | 17.8%       |             |            | 0          | 160                          | 47                              | 235                 | 118               | 1951                  | 2351                             | 16.7%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Nov'18                 |       | 15751                | 12796                  | 0                          | 2956                          | 18.8%       |             |            | 0          | 164                          | 56                              | 279                 | 140               | 2317                  | 2791                             | 17.7%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Dec'18                 |       | 14695                | 12745                  | 0                          | 1850                          | 17.7%       |             |            | 0          | 163                          | 59                              | 259                 | 137               | 2147                  | 2587                             | 16.7%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jan'19                 |       | 17189                | 15612                  | 0                          | 1577                          | 9.2%        |             |            | 0          | 166                          | 28                              | 141                 | 71                | 1171                  | 1411                             | 8.2%                 |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Feb'19                 |       | 18743                | 14944                  | 0                          | 3799                          | 20.3%       |             |            | 0          | 169                          | 73                              | 363                 | 181               | 3012                  | 3630                             | 19.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Mar'19                 |       | 17815                | 13976                  | 0                          | 5839                          | 32.8%       |             |            | 0          | 168                          | 113                             | 567                 | 284               | 4707                  | 5671                             | 31.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Apr'19                 |       | 16988                | 14598                  | 0                          | 2700                          | 15.9%       |             |            | 0          | 166                          | 51                              | 253                 | 127               | 2103                  | 2534                             | 14.9%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| May'19                 |       | 15055                | 15842                  | 0                          | -787                          | -5.2%       |             |            | 0          | 162                          | -19                             | -95                 | -47               | -788                  | -949                             | -6.3%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jun'19                 |       | 15972                | 13822                  | 0                          | 2150                          | 13.5%       |             |            | 0          | 160                          | 20                              | 91                  | 5                 | 1110                  | 1382                             | 10.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jul'19                 | 19/20 | 14021                | 10335                  | 0                          | 3686                          | 26.3%       | 47762       | 21.4%      | 0          | 160                          | 71                              | 353                 | 176               | 2927                  | 3526                             | 25.1%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Aug'19                 |       | 14796                | 12628                  | 0                          | 2168                          | 14.7%       |             |            | 0          | 162                          | 40                              | 201                 | 100               | 1665                  | 2006                             | 13.6%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Sep'19                 |       | 15009                | 11679                  | 0                          | 3330                          | 22.2%       |             |            | 0          | 162                          | 63                              | 317                 | 158               | 2629                  | 3168                             | 21.1%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Oct'19                 |       | 15439                | 12512                  | 0                          | 2927                          | 19.0%       |             |            | 0          | 163                          | 55                              | 276                 | 138               | 2294                  | 2764                             | 17.9%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Nov'19                 |       | 18557                | 14245                  | 0                          | 4312                          | 23.2%       |             |            | 0          | 169                          | 83                              | 414                 | 207               | 3439                  | 4143                             | 22.3%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Dec'19                 |       | 19969                | 15691                  | 0                          | 4278                          | 21.4%       |             |            | 0          | 172                          | 82                              | 411                 | 205               | 3408                  | 4106                             | 20.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jan'20                 |       | 22460                | 17831                  | 0                          | 4629                          | 20.6%       |             |            | 0          | 177                          | 89                              | 445                 | 223               | 3695                  | 4452                             | 19.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Feb'20                 |       | 21776                | 19022                  | 0                          | 2754                          | 12.6%       |             |            | 0          | 176                          | 52                              | 258                 | 129               | 2140                  | 2579                             | 11.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Mar'20                 |       | 25500                | 21478                  | 0                          | 4022                          | 15.8%       |             |            | 0          | 183                          | 77                              | 384                 | 192               | 3186                  | 3839                             | 15.1%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Apr'20                 |       | 22463                | 13644                  | 0                          | 8839                          | 39.3%       |             |            | 0          | 177                          | 173                             | 866                 | 433               | 7177                  | 8662                             | 38.5%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| May'20                 |       | 16594                | 13509                  | 0                          | 3085                          | 18.6%       |             |            | 0          | 165                          | 58                              | 292                 | 146               | 2423                  | 2920                             | 17.6%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jun'20                 |       | 16801                | 13069                  | 0                          | 3732                          | 22.2%       |             |            | 0          | 166                          | 71                              | 357                 | 178               | 2960                  | 3566                             | 21.2%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jul'20                 | 20/21 | 13427                | 12062                  | 0                          | 1365                          | 10.2%       | 52790       | 20.6%      | 0          | 159                          | 24                              | 121                 | 60                | 1001                  | 1206                             | 9.2%                 |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Aug'20                 |       | 15223                | 12369                  | 0                          | -3246                         | -54.2%      |             |            | 0          | 162                          | -168                            | -841                | -420              | -6979                 | -8408                            | -55.2%               |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Sep'20                 |       | 16715                | 3655                   | 0                          | 13060                         | 78.1%       |             |            | 0          | 165                          | 258                             | 1289                | 645               | 10703                 | 12895                            | 77.1%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Oct'20                 |       | 17634                | 13982                  | 0                          | 3652                          | 20.7%       |             |            | 0          | 167                          | 70                              | 348                 | 174               | 2892                  | 3485                             | 19.8%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Nov'20                 |       | 21661                | 17258                  | 0                          | 4703                          | 20.3%       |             |            | 0          | 175                          | 85                              | 423                 | 211               | 3509                  | 4227                             | 19.5%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Dec'20                 |       | 22808                | 18870                  | 0                          | 3938                          | 17.3%       |             |            | 0          | 178                          | 75                              | 376                 | 188               | 3121                  | 3761                             | 16.5%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jan'21                 |       | 36170                | 20782                  | 0                          | 9388                          | 31.1%       |             |            | 0          | 192                          | 184                             | 920                 | 460               | 7632                  | 9196                             | 30.5%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Feb'21                 |       | 28720                | 26877                  | 0                          | 1843                          | 6.4%        |             |            | 0          | 169                          | 33                              | 165                 | 83                | 1373                  | 1654                             | 5.8%                 |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Mar'21                 |       | 23670                | 17839                  | 0                          | 5831                          | 24.6%       |             |            | 0          | 179                          | 113                             | 565                 | 283               | 4691                  | 5652                             | 23.9%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Apr'21                 |       | 24040                | 19425                  | 0                          | 4615                          | 19.2%       |             |            | 0          | 180                          | 89                              | 444                 | 222               | 3651                  | 4435                             | 18.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| May'21                 |       | 22677                | 16077                  | 0                          | 6660                          | 29.4%       |             |            | 0          | 177                          | 130                             | 648                 | 324               | 5380                  | 6482                             | 28.6%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jun'21                 |       | 19473                | 13193                  | 0                          | 6280                          | 32.2%       |             |            | 0          | 171                          | 122                             | 611                 | 305               | 5070                  | 6109                             | 31.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jul'21                 | 21/22 | 17510                | 15221                  | 0                          | 2289                          | 13.1%       | 98088       | 29.6%      | 0          | 365                          | 38                              | 192                 | 96                | 1597                  | 1824                             | 11.0%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Aug'21                 |       | 19700                | 15703                  | 0                          | 3997                          | 20.3%       |             |            | 0          | 369                          | 73                              | 363                 | 181               | 3011                  | 3629                             | 18.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Sep'21                 |       | 19070                | 16201                  | 0                          | 6769                          | 35.5%       |             |            | 0          | 368                          | 128                             | 640                 | 320               | 5313                  | 6401                             | 33.6%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Oct'21                 |       | 22160                | 17305                  | 0                          | 4555                          | 20.6%       |             |            | 0          | 374                          | 84                              | 418                 | 209               | 3470                  | 4180                             | 18.9%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Nov'21                 |       | 24100                | 17082                  | 0                          | 7018                          | 29.1%       |             |            | 0          | 378                          | 133                             | 664                 | 332               | 5511                  | 6640                             | 27.6%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Dec'21                 |       | 23760                | 19462                  | 0                          | 4298                          | 18.1%       |             |            | 0          | 378                          | 78                              | 392                 | 196               | 5254                  | 5921                             | 16.5%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Jan'22                 |       | 29900                | 24015                  | 0                          | 5885                          | 19.7%       |             |            | 0          | 390                          | 110                             | 550                 | 275               | 4561                  | 5495                             | 16.4%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Feb'22                 |       | 40144                | 24868                  | 0                          | 15276                         | 38.1%       |             |            | 0          | 410                          | 297                             | 1487                | 743               | 12338                 | 14867                            | 37.0%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Mar'22                 |       | 30766                | 23233                  | 0                          | 7333                          | 24.5%       |             |            | 0          | 392                          | 143                             | 714                 | 357               | 5928                  | 7142                             | 23.2%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| Apr'22                 |       | 35140                | 26697                  | 0                          | 8443                          | 24.0%       |             |            | 0          | 400                          | 161                             | 804                 | 402               | 6676                  | 8043                             | 22.9%                |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |
| May'22                 |       | 38860                | 27162                  | 0                          | 11688                         |             |             |            |            |                              |                                 |                     |                   |                       |                                  |                      |                      |                     |                      |                      |                     |                     |                     |                                   |     |    |     |

WATER BALANCE AND USAGE FOR RIEBEEK KASTEEL DISTRIBUTION SYSTEM

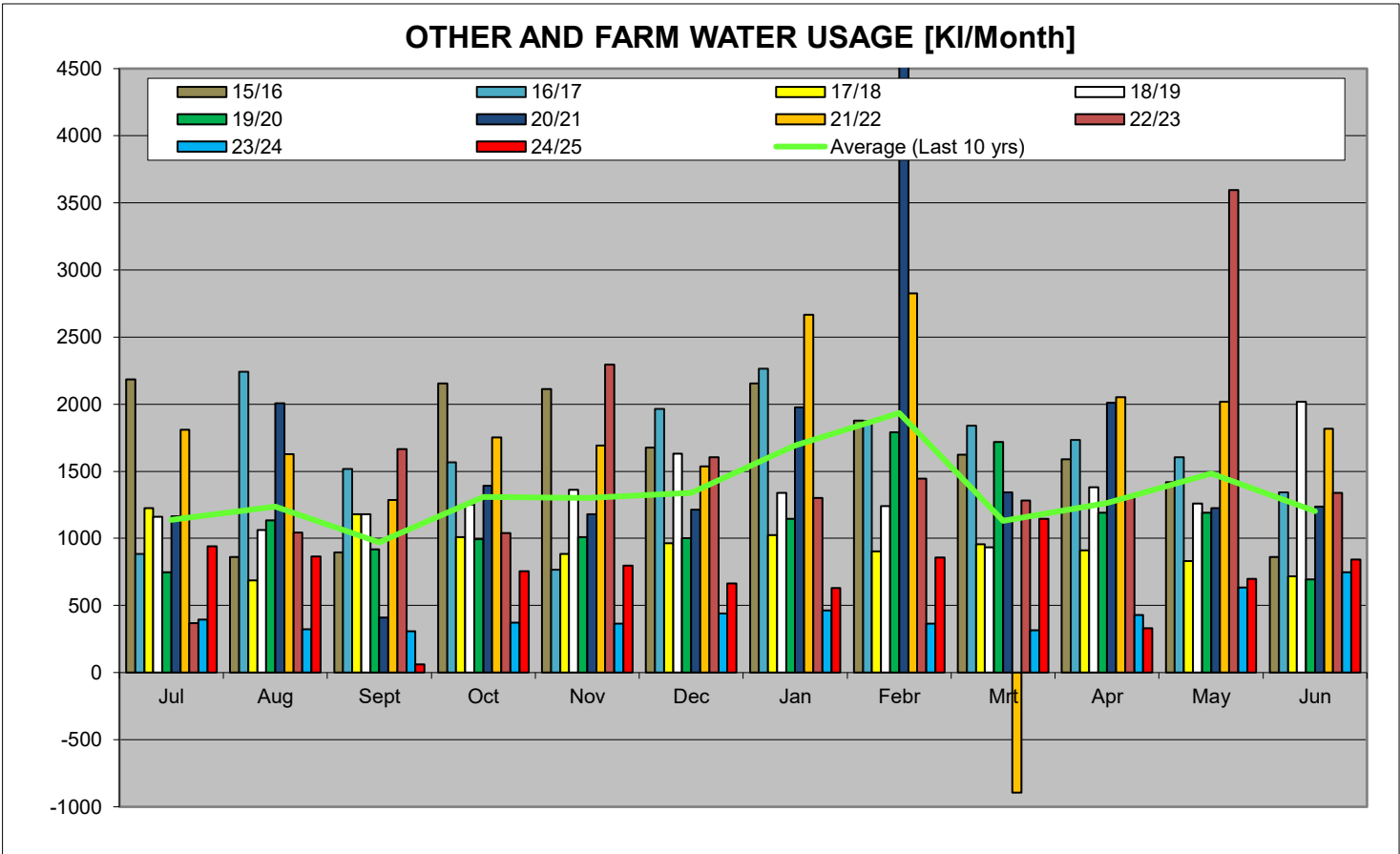
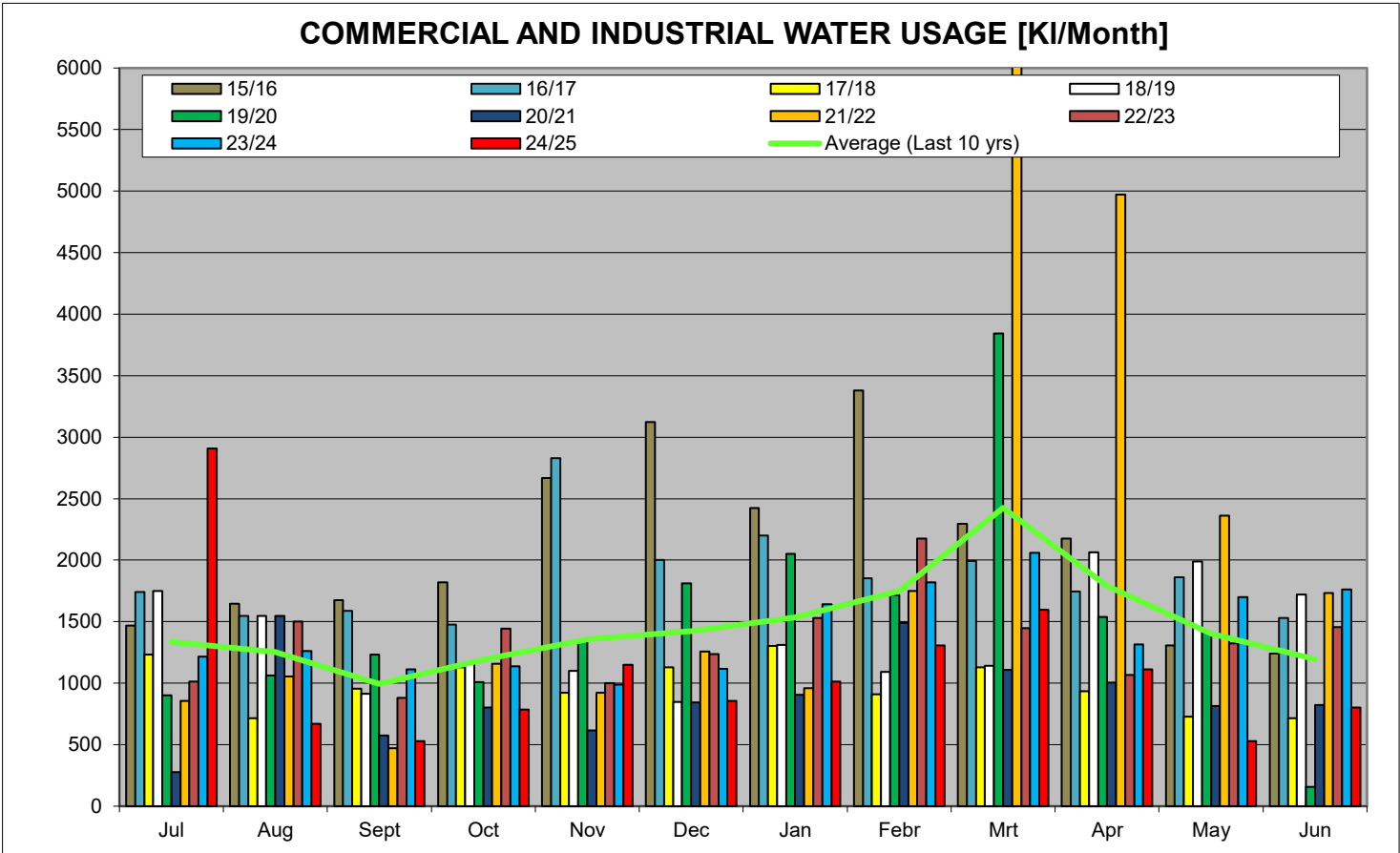
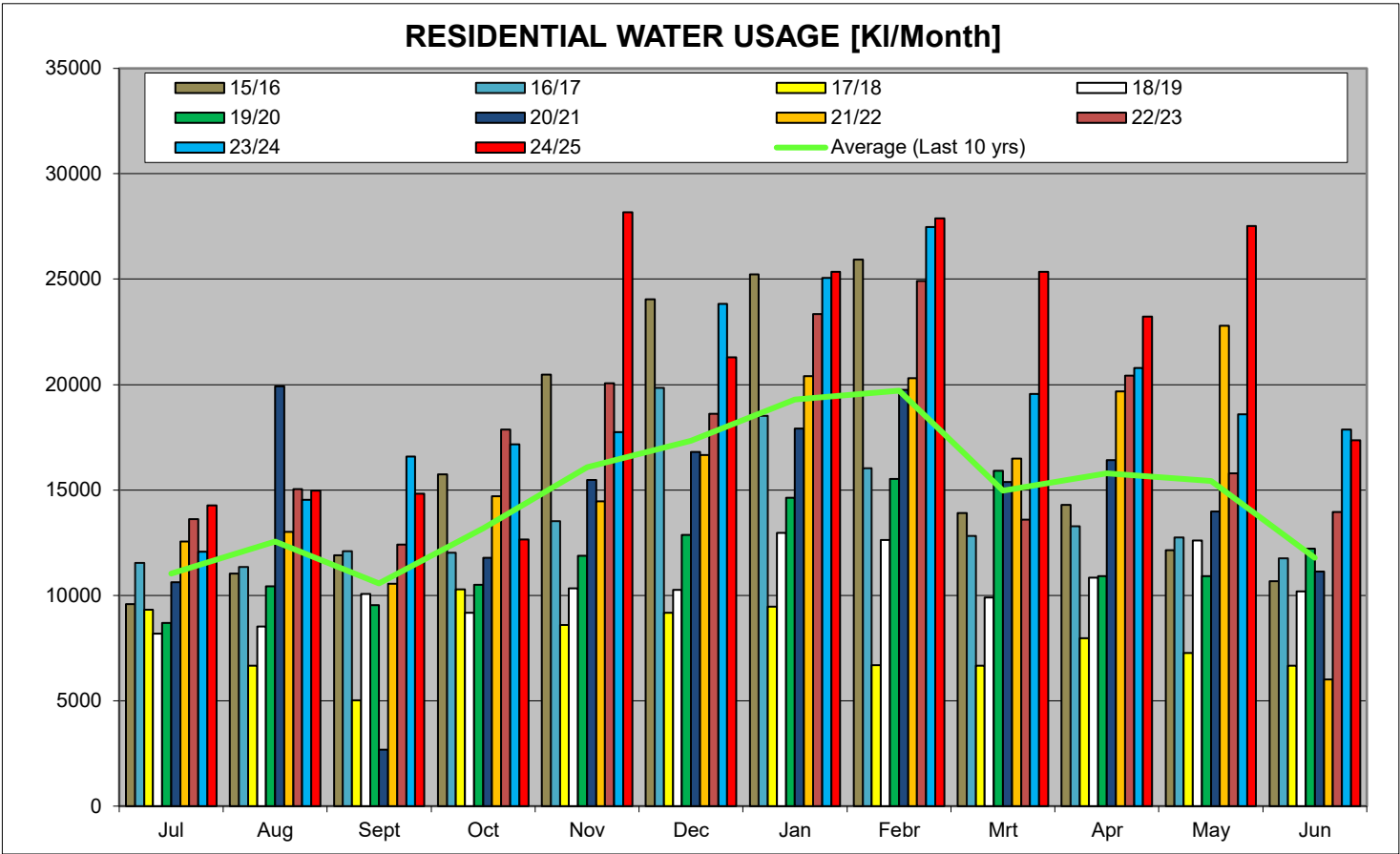


WATER BALANCE AND USAGE FOR RIEBEEK KASTEEL DISTRIBUTION SYSTEM





WATER BALANCE AND USAGE FOR RIEBEEK KASTEEL DISTRIBUTION SYSTEM



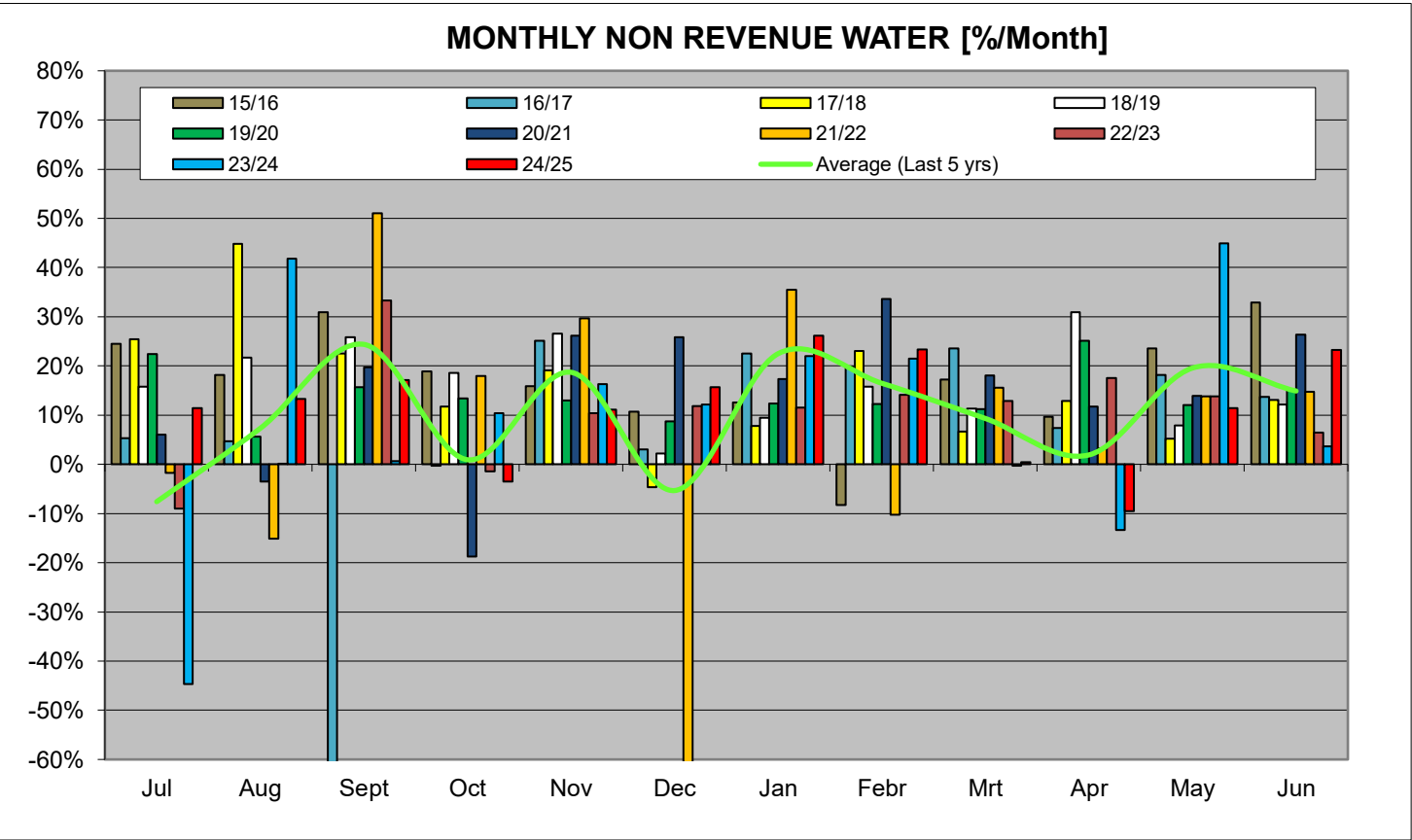
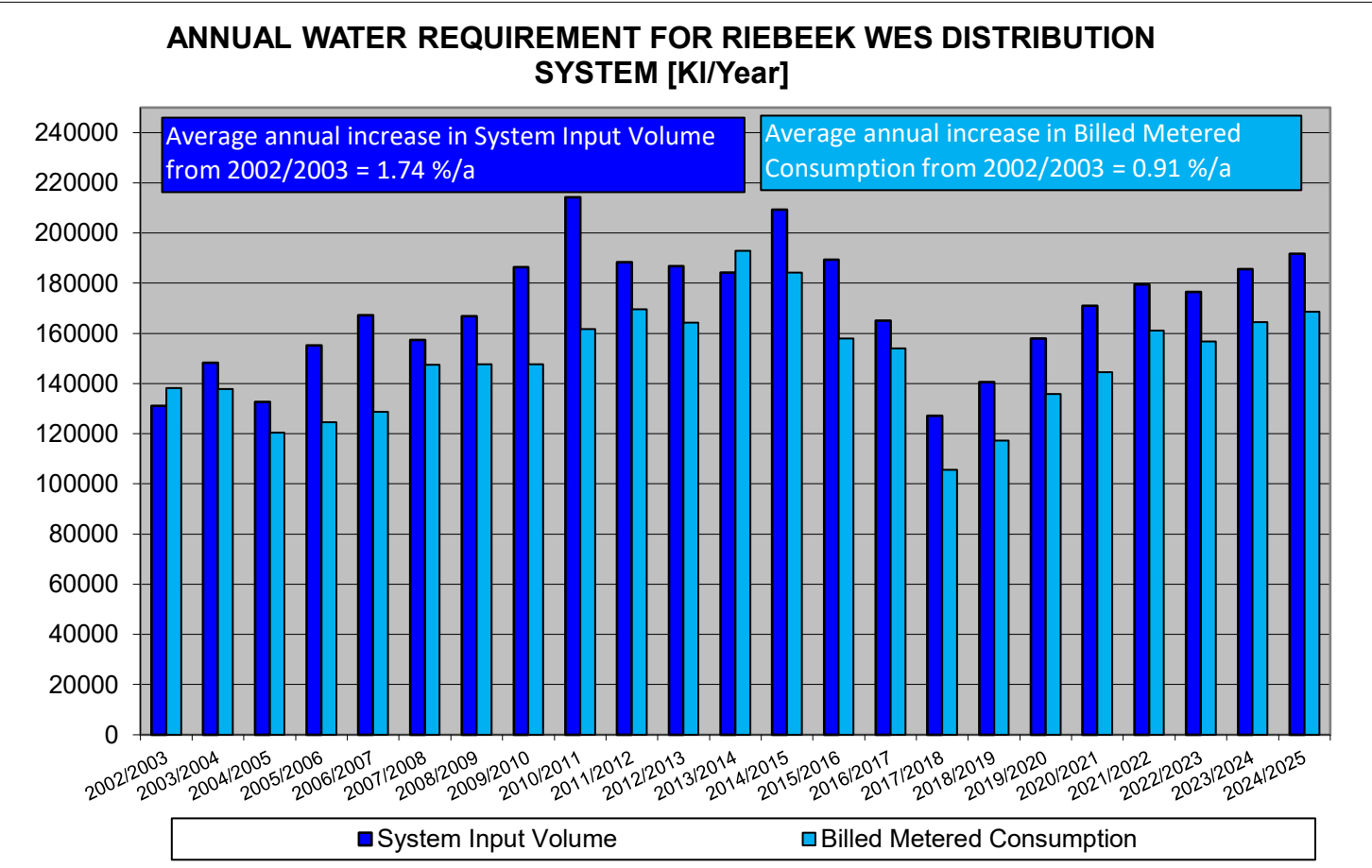
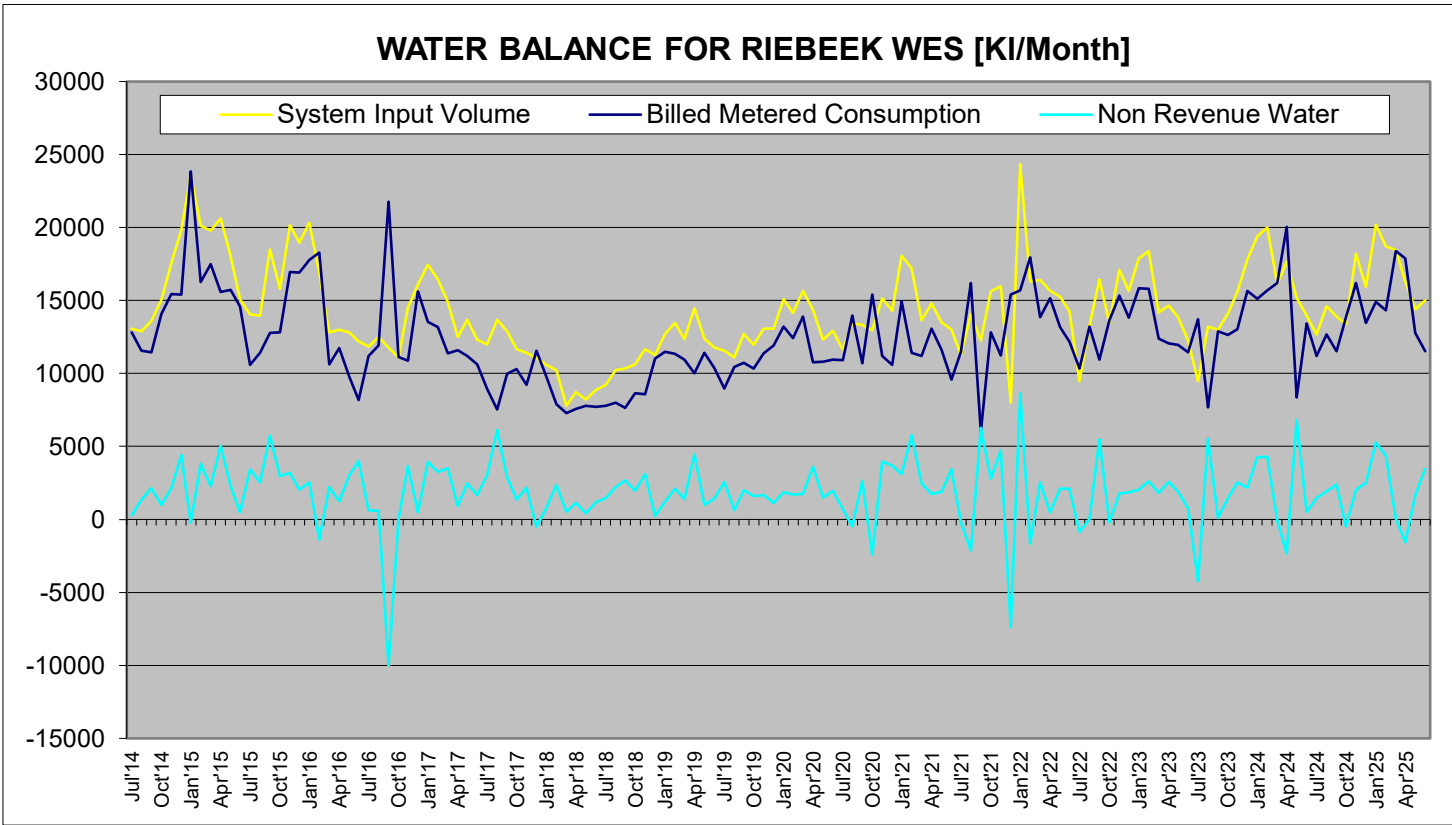
| SWARTLAND MUNICIPALITY |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
|------------------------|-------|---------------------|------------------------|----------------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|-------------------------------|---------------------|-----------------------------------|-------|----------------------------------------------------|----------------------|----------------------|---------------------|---------------------|-----------------------|
| Riebeeck Wes           |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| TREATED WATER SUPPLY   |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Month                  | Year  | System Input Volume | Revenue Water          |                            | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Non Revenue Water (NRW)       |                     |                                   |       | Real Losses<br>Leaks, Reservoirs<br>overflow, etc. | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                       |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption |             |             |            |            |                              |                                 | Billed Un-metered Consumption | Illegal Connections | Apparent Losses                   |       |                                                    |                      |                      |                     |                     | Administrative Errors |
|                        |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     | Estimated Percentages (Variables) |       |                                                    |                      |                      |                     |                     |                       |
|                        |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     | 2%                                | 10%   |                                                    |                      |                      |                     |                     |                       |
| [m³]                   | [m³]  | [m³]                | [m³]                   | [%]                        | [m³]        | [%]         | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                          | [m³]                | [m³]                              | [m³]  | [%]                                                | [m³]                 | [%]                  |                     |                     |                       |
| Jan01                  | 00/01 |                     | 19283                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Feb01                  |       |                     | 11493                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Mar01                  |       |                     | 14552                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Apr01                  |       |                     | 16221                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| May01                  |       |                     | 11563                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Jun01                  |       |                     | 8369                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Jul01                  |       |                     | 11096                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Aug01                  |       |                     | 9579                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Sep01                  |       |                     | 6246                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Oct01                  |       |                     | 12385                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Nov01                  |       |                     | 11799                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Dec01                  |       |                     | 7438                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Jan02                  | 01/02 |                     | 10478                  |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Feb02                  |       |                     | 8429                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Mar02                  |       |                     | 8782                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Apr02                  |       |                     | 9379                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| May02                  |       |                     | 1458                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Jun02                  |       |                     | 6646                   |                            |             |             |            |            |                              |                                 |                               |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |
| Jul02                  |       |                     | 11573                  | 8623                       | 0           | 2960        | 25.5%      |            | 0                            | 23                              | 59                            | 293                 | 146                               | 2429  | 2927                                               | 25.3%                |                      |                     |                     |                       |
| Aug02                  |       |                     | 6957                   | 7853                       | 0           | 496         | -12.9%     |            | 0                            | 14                              | -18                           | -91                 | -45                               | -755  | -910                                               | -13.1%               |                      |                     |                     |                       |
| Sep02                  |       |                     | 8563                   | 8790                       | 0           | -227        | -2.7%      |            | 0                            | 17                              | -5                            | -24                 | -12                               | -203  | -244                                               | -2.9%                |                      |                     |                     |                       |
| Oct02                  |       |                     | 10057                  | 11270                      | 0           | -1213       | -12.1%     |            | 0                            | 20                              | -25                           | -123                | -62                               | -1023 | -1233                                              | -12.3%               |                      |                     |                     |                       |
| Nov02                  |       |                     | 10597                  | 11179                      | 0           | -582        | -5.5%      |            | 0                            | 21                              | -12                           | -60                 | -30                               | -601  | -603                                               | -5.7%                |                      |                     |                     |                       |
| Dec02                  |       |                     | 17108                  | 16241                      | 0           | 865         | 5.1%       |            | 0                            | 34                              | 17                            | 83                  | 42                                | 690   | 631                                                | 4.9%                 |                      |                     |                     |                       |
| Jan03                  | 02/03 |                     | 14183                  | 15446                      | 0           | -1263       | -8.9%      | -6968      | -5.3%                        | 0                               | 28                            | -26                 | -129                              | -65   | -1072                                              | -1291                | -8.1%                | -7230               | -5.5%               |                       |
| Feb03                  |       |                     | 8781                   | 12424                      | 0           | -3643       | -41.5%     |            | 0                            | 18                              | -73                           | -366                | -183                              | -3038 | -3661                                              | -41.7%               |                      |                     |                     |                       |
| Mar03                  |       |                     | 11551                  | 15589                      | 0           | -4038       | -35.0%     |            | 0                            | 23                              | -81                           | -406                | -203                              | -3371 | -4061                                              | -35.2%               |                      |                     |                     |                       |
| Apr03                  |       |                     | 12182                  | 9339                       | 0           | 2843        | 23.3%      |            | 0                            | 24                              | 56                            | 282                 | 141                               | 2339  | 2819                                               | 23.1%                |                      |                     |                     |                       |
| May03                  |       |                     | 8863                   | 12442                      | 0           | -3579       | -40.4%     |            | 0                            | 18                              | -72                           | -360                | -180                              | -2985 | -3597                                              | -40.6%               |                      |                     |                     |                       |
| Jun03                  |       |                     | 10738                  | 8922                       | 0           | 1816        | 16.9%      |            | 0                            | 21                              | 36                            | 179                 | 90                                | 1489  | 1794                                               | 16.7%                |                      |                     |                     |                       |
| Jul03                  |       |                     | 7332                   | 8631                       | 0           | -1299       | -17.7%     |            | 0                            | 15                              | -26                           | -131                | -66                               | -1090 | -1314                                              | -17.9%               |                      |                     |                     |                       |
| Aug03                  |       |                     | 7330                   | 8494                       | 0           | -1164       | -15.9%     |            | 0                            | 15                              | -24                           | -118                | -59                               | -978  | -1179                                              | -16.1%               |                      |                     |                     |                       |
| Sep03                  |       |                     | 10609                  | 8074                       | 0           | 2535        | 23.9%      |            | 0                            | 21                              | 50                            | 251                 | 126                               | 2086  | 2514                                               | 23.7%                |                      |                     |                     |                       |
| Oct03                  |       |                     | 9910                   | 8357                       | 0           | 653         | 7.2%       |            | 0                            | 18                              | 13                            | 63                  | 32                                | 527   | 635                                                | 7.0%                 |                      |                     |                     |                       |
| Nov03                  |       |                     | 11551                  | 12444                      | 0           | -893        | -7.7%      |            | 0                            | 23                              | -18                           | -92                 | -46                               | -960  | -916                                               | -7.9%                |                      |                     |                     |                       |
| Dec03                  |       |                     | 14438                  | 11879                      | 0           | 2559        | 17.7%      |            | 0                            | 29                              | 51                            | 253                 | 127                               | 2100  | 2530                                               | 17.5%                |                      |                     |                     |                       |
| Jan04                  | 03/04 |                     | 14778                  | 16386                      | 0           | -1610       | -10.9%     | 10454      | 7.0%                         | 0                               | 30                            | -33                 | -164                              | -82   | -1361                                              | -1640                | -11.1%               | 10157               | 6.8%                |                       |
| Feb04                  |       |                     | 16659                  | 14505                      | 0           | 2154        | 12.9%      |            | 0                            | 33                              | 42                            | 212                 | 106                               | 1760  | 2121                                               | 12.7%                |                      |                     |                     |                       |
| Mar04                  |       |                     | 12744                  | 14415                      | 0           | -1671       | -13.1%     |            | 0                            | 25                              | -34                           | -170                | -85                               | -1408 | -1696                                              | -13.3%               |                      |                     |                     |                       |
| Apr04                  |       |                     | 14698                  | 13460                      | 0           | 1236        | 8.4%       |            | 0                            | 29                              | 24                            | 121                 | 60                                | 1001  | 1207                                               | 8.2%                 |                      |                     |                     |                       |
| May04                  |       |                     | 14377                  | 10555                      | 0           | 3822        | 26.6%      |            | 0                            | 29                              | 76                            | 379                 | 190                               | 3148  | 3793                                               | 26.4%                |                      |                     |                     |                       |
| Jun04                  |       |                     | 14829                  | 10697                      | 0           | 4132        | 27.9%      |            | 0                            | 30                              | 82                            | 410                 | 205                               | 3405  | 4102                                               | 27.7%                |                      |                     |                     |                       |
| Jul04                  |       |                     | 8283                   | 7697                       | 0           | 386         | 4.7%       |            | 0                            | 17                              | 7                             | 37                  | 18                                | 307   | 369                                                | 4.5%                 |                      |                     |                     |                       |
| Aug04                  |       |                     | 10138                  | 8182                       | 0           | 1956        | 19.3%      |            | 0                            | 20                              | 39                            | 194                 | 97                                | 1607  | 1936                                               | 19.1%                |                      |                     |                     |                       |
| Sep04                  |       |                     | 9312                   | 9598                       | 0           | -286        | -3.1%      |            | 0                            | 19                              | 62                            | 310                 | 156                               | -253  | -305                                               | -3.3%                |                      |                     |                     |                       |
| Oct04                  |       |                     | 15266                  | 10280                      | 0           | 4986        | 32.7%      |            | 0                            | 31                              | 99                            | 496                 | 248                               | 4113  | 4955                                               | 32.5%                |                      |                     |                     |                       |
| Nov04                  |       |                     | 9957                   | 9993                       | 0           | -36         | -0.4%      |            | 0                            | 20                              | -1                            | -6                  | -3                                | -46   | -56                                                | -0.6%                |                      |                     |                     |                       |
| Dec04                  |       |                     | 12240                  | 12156                      | 0           | 84          | 0.7%       |            | 0                            | 24                              | 1                             | 6                   | 3                                 | 49    | 60                                                 | 0.5%                 | 11953                | 9.0%                |                     |                       |
| Jan05                  | 04/05 |                     | 13395                  | 11575                      | 0           | 1820        | 13.6%      | 12218      | 9.2%                         | 0                               | 27                            | 36                  | 179                               | 90    | 1488                                               | 1793                 | 13.4%                |                     |                     |                       |
| Feb05                  |       |                     | 11058                  | 11824                      | 0           | -766        | -6.9%      |            | 0                            | 22                              | -16                           | -79                 | -39                               | -654  | -788                                               | -7.1%                |                      |                     |                     |                       |
| Mar05                  |       |                     | 10140                  | 10245                      | 0           | -105        | -1.0%      |            | 0                            | 20                              | -3                            | -13                 | -6                                | -104  | -125                                               | -1.2%                |                      |                     |                     |                       |
| Apr05                  |       |                     | 10556                  | 11628                      | 0           | -1072       | -10.2%     |            | 0                            | 21                              | -22                           | -109                | -55                               | -907  | -1093                                              | -10.4%               |                      |                     |                     |                       |
| May05                  |       |                     | 9958                   | 9092                       | 0           | 866         | 8.7%       |            | 0                            | 20                              | 17                            | 85                  | 42                                | 702   | 846                                                | 8.5%                 |                      |                     |                     |                       |
| Jun05                  |       |                     | 12354                  | 7969                       | 0           | 4385        | 35.5%      |            | 0                            | 25                              | 67                            | 436                 | 218                               | 3619  | 4360                                               | 35.3%                |                      |                     |                     |                       |
| Jul05                  |       |                     | 8281                   | 8120                       | 0           | 159         | 1.9%       |            | 0                            | 17                              | -9                            | -46                 | -23                               | -378  | -466                                               | -5.5%                |                      |                     |                     |                       |
| Aug05                  |       |                     | 9554                   | 8117                       | 0           | 1437        | 15.0%      |            | 0                            | 19                              | 28                            | 142                 | 71                                | 1177  | 1418                                               | 14.8%                |                      |                     |                     |                       |
| Sep05                  |       |                     | 7737                   | 9170                       | 0           | -1433       | -18.5%     |            | 0                            | 15                              | -29                           | -145                | -72                               | -1202 | -1448                                              | -18.7%               |                      |                     |                     |                       |
| Oct05                  |       |                     | 9459                   | 8859                       | 0           | 600         | 6.3%       |            | 0                            | 19                              | 12                            | 58                  | 29                                | 482   | 581                                                | 6.1%                 |                      |                     |                     |                       |
| Nov05                  |       |                     | 12204                  | 10556                      | 0           | 1648        | 13.5%      |            | 0                            | 24                              | 32                            | 162                 | 81                                | 1348  | 1624                                               | 13.3%                |                      |                     |                     |                       |
| Dec05                  |       |                     | 15337                  | 12801                      | 0           | 2536        | 16.5%      |            | 0                            | 31                              | 50                            | 251                 | 125                               | 2079  | 2505                                               | 16.3%                |                      |                     |                     |                       |
| Jan06                  | 05/06 |                     | 17267                  | 14084                      | 0           | 3183        | 18.4%      | 30648      | 19.7%                        | 0                               | 35                            | 63                  | 315                               | 157   | 2813                                               | 3148                 | 18.2%                | 30337               | 19.5%               |                       |
| Feb06                  |       |                     | 19408                  | 13752                      | 0           | 5656        | 29.1%      |            | 0                            | 39                              | 112                           | 562                 | 281                               | 4663  | 5617                                               | 28.9%                |                      |                     |                     |                       |
| Mar06                  |       |                     | 14730                  | 9949                       | 0           | 4781        | 32.5%      |            | 0                            | 29                              | 95                            | 475                 | 238                               | 3943  | 4751                                               | 32.3%                |                      |                     |                     |                       |
| Apr06                  |       |                     | 15719                  | 12011                      | 0           | 3708        | 23.6%      |            | 0                            | 31                              | 74                            | 368                 | 184                               | 3052  | 3677                                               | 23.4%                |                      |                     |                     |                       |
| May06                  |       |                     | 14533                  | 7777                       | 0           | 6756        | 46.5%      |            | 0                            | 29                              | 135                           | 673                 | 336                               | 5583  | 6727                                               | 46.3%                |                      |                     |                     |                       |
| Jun06                  |       |                     | 11057                  | 8642                       | 0           | 2215        | 20.0%      |            | 0                            | 22                              | 44                            | 210                 | 110                               | 1820  | 2193                                               | 19.8%                |                      |                     |                     |                       |
| Jul06                  |       |                     | 12149                  | 8547                       | 0           | 3602        | 29.6%      |            | 0                            | 24                              | 72                            | 358                 | 179                               | 2969  | 3578                                               | 29.4%                |                      |                     |                     |                       |
| Aug06                  |       |                     | 10631                  | 8008                       | 0           | 2623        | 24.7%      |            | 0                            | 21                              | 52                            | 260                 | 130                               | 2159  | 2601                                               | 24.5%                |                      |                     |                     |                       |
| Sep06                  |       |                     | 10886                  | 7740                       | 0           | 3146        | 28.9%      |            | 0                            | 22                              | 62                            | 312                 | 156                               | 2593  | 3124                                               | 28.7%                |                      |                     |                     |                       |
| Oct06                  |       |                     | 12037                  | 8583                       | 0           | 3454        | 28.7%      |            | 0                            | 24                              | 69                            | 343                 | 172                               | 2847  | 3430                                               | 28.5%                |                      |                     |                     |                       |
| Nov06                  |       |                     | 13560                  | 13124                      | 0           | 3124        | 23.0%      |            | 0                            | 27                              | 62                            | 310                 | 156                               | 2570  | 3096                                               | 22.8%                |                      |                     |                     |                       |
| Dec06                  |       |                     | 11048                  | 12524                      | 0           | -1476       | -13.4%     |            | 0                            | 22                              | -30                           | -150                | -75                               | -1243 | -1498                                              | -13.6%               |                      |                     |                     |                       |
| Jan07                  | 06/07 |                     | 20831                  | 12574                      | 0           | 8257        | 39.6%      | 38580      | 23.1%                        | 0                               | 42</                          |                     |                                   |       |                                                    |                      |                      |                     |                     |                       |



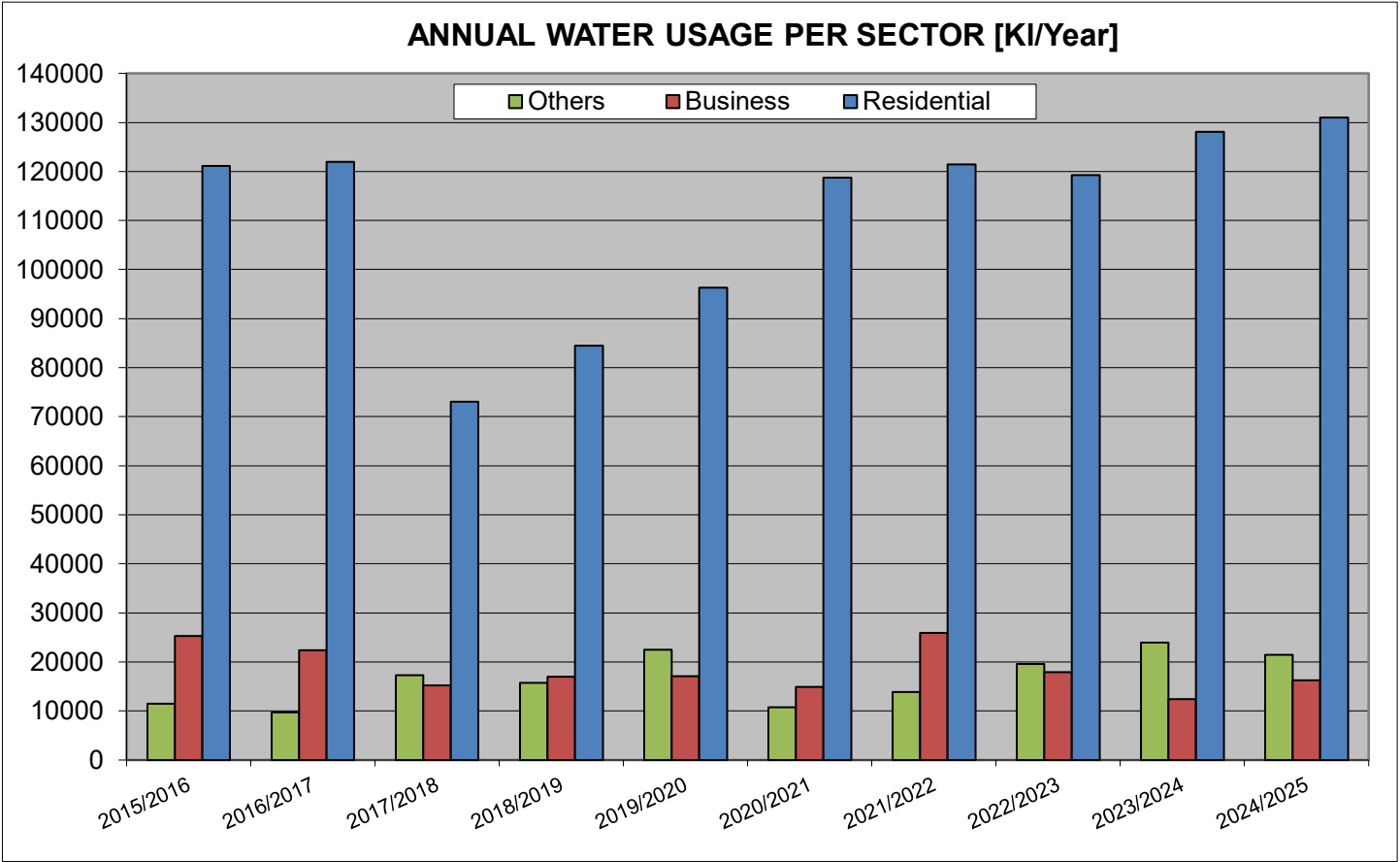
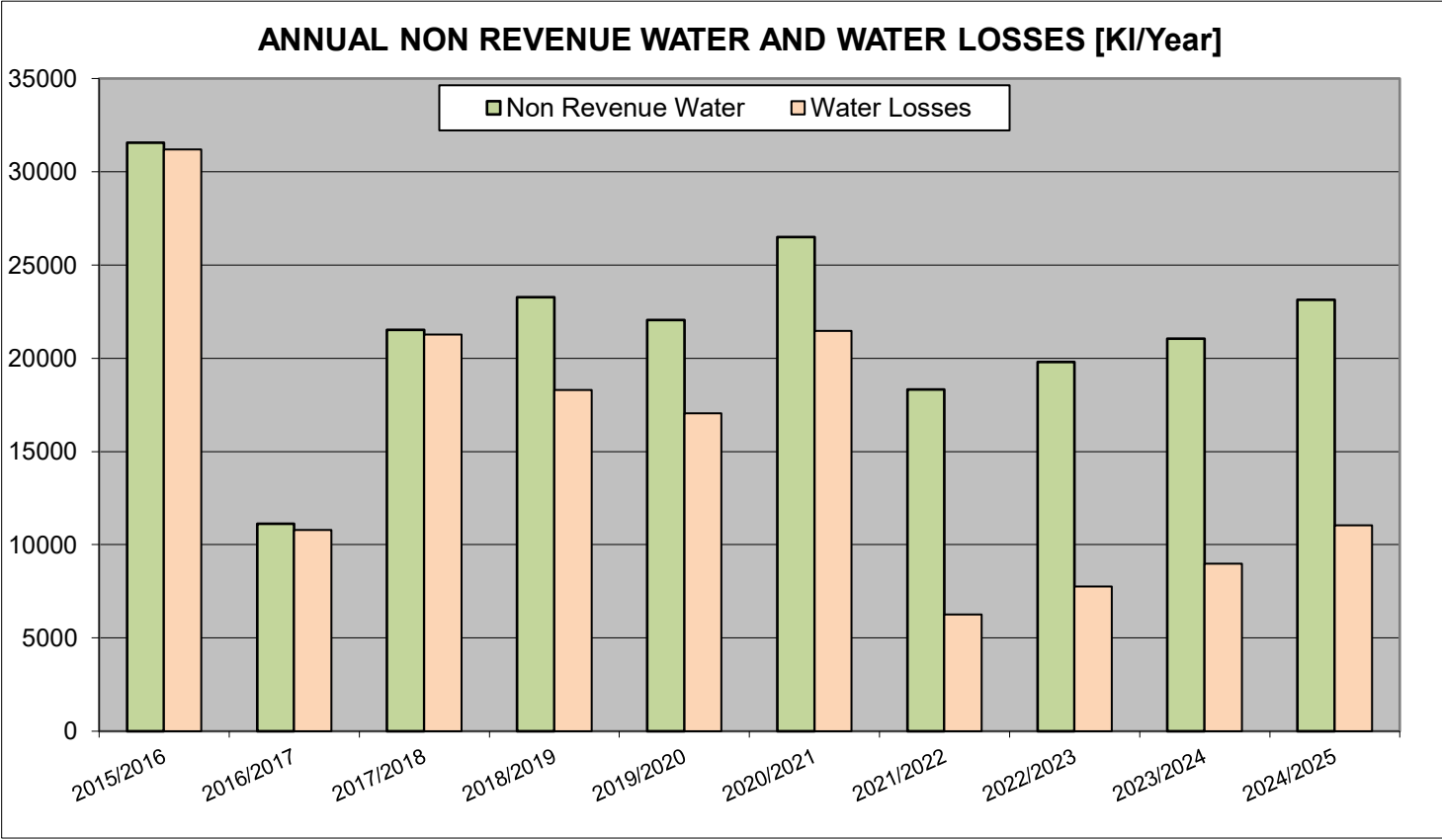
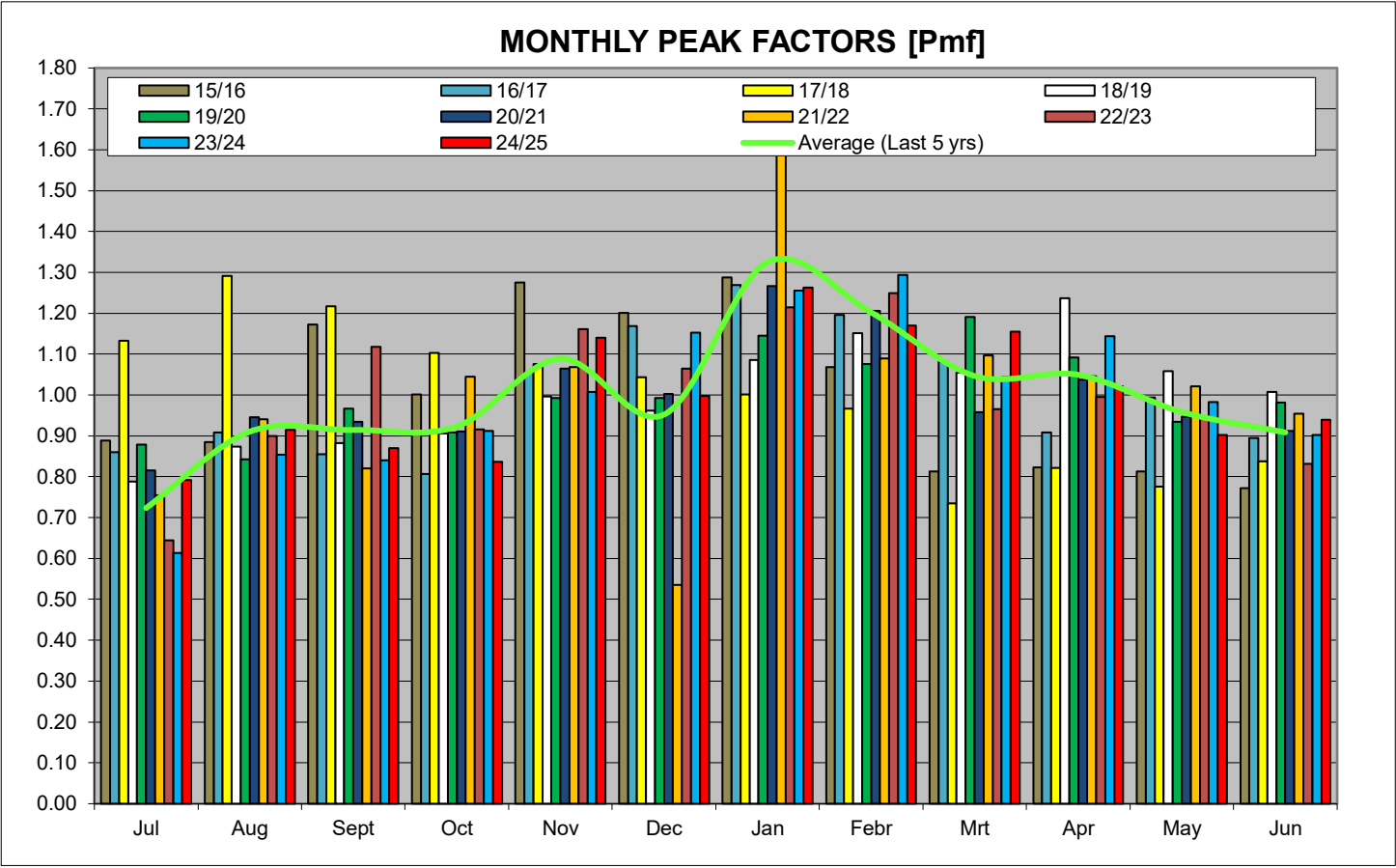
| SWARTLAND MUNICIPALITY |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                                                    |                   |                       |                                       |                      |                      |                     |                     |                                   |     |    |
|------------------------|-------|------------------------|----------------------------|-------------------------------|---------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|----------------------------------------------------|-------------------|-----------------------|---------------------------------------|----------------------|----------------------|---------------------|---------------------|-----------------------------------|-----|----|
| Riebeeck Wes           |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                                                    |                   |                       |                                       |                      |                      |                     |                     |                                   |     |    |
| TREATED WATER SUPPLY   |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                                                    |                   |                       |                                       |                      |                      |                     |                     |                                   |     |    |
| Month                  | Year  | System Input Volume    |                            | Revenue Water                 |                     | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Non Revenue Water (NRW)                            |                   |                       |                                       | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                                   |     |    |
|                        |       | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Apparent Losses     |             |             |            |            |                              |                                 | Real Losses<br>Leaks, Reservoirs<br>overflow, etc. |                   |                       |                                       |                      |                      |                     |                     |                                   |     |    |
|                        |       |                        |                            |                               | Illegal Connections |             |             |            |            |                              |                                 |                                                    | Inaccurate Meters | Administrative Errors | Leakage, Reservoirs<br>overflow, etc. |                      |                      |                     |                     |                                   |     |    |
|                        |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                                                    |                   |                       |                                       |                      |                      |                     |                     | Estimated Percentages (Variables) |     |    |
|                        |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                                                    |                   |                       |                                       |                      |                      |                     |                     | 2%                                | 10% | 5% |
| [m³]                   | [m³]  | [m³]                   | [m³]                       | [%]                           | [m³]                | [%]         | [m³]        | [%]        | [m³]       | [m³]                         | [m³]                            | [m³]                                               | [m³]              | [m³]                  | [m³]                                  | [m³]                 |                      |                     |                     |                                   |     |    |
| Jul'16                 | 16/17 | 11838                  | 11213                      | 0                             | 625                 | 5.3%        | 11134       | 6.7%       |            | 0                            | 24                              | 12                                                 | 60                | 30                    | 499                                   | 601                  | 5.1%                 | 10804               | 6.5%                |                                   |     |    |
| Aug'16                 |       | 12509                  | 11919                      | 0                             | 590                 | 4.7%        |             |            |            | 0                            | 25                              | 11                                                 | 56                | 28                    | 469                                   | 565                  | 4.5%                 |                     |                     |                                   |     |    |
| Sep'16                 |       | 11774                  | 21769                      | 0                             | -9995               | -84.9%      |             |            |            | 0                            | 24                              | -200                                               | -1002             | -501                  | -8315                                 | -10019               | -85.1%               |                     |                     |                                   |     |    |
| Oct'16                 |       | 11110                  | 11139                      | 0                             | -29                 | -0.3%       |             |            |            | 0                            | 22                              | -1                                                 | -5                | -3                    | -43                                   | -51                  | -0.5%                |                     |                     |                                   |     |    |
| Nov'16                 |       | 14518                  | 10866                      | 0                             | 3652                | 25.2%       |             |            |            | 0                            | 29                              | 72                                                 | 362               | 181                   | 3007                                  | 3623                 | 25.0%                |                     |                     |                                   |     |    |
| Dec'16                 |       | 16092                  | 15604                      | 0                             | 488                 | 3.0%        |             |            |            | 0                            | 32                              | 9                                                  | 46                | 23                    | 378                                   | 456                  | 2.8%                 |                     |                     |                                   |     |    |
| Jan'17                 |       | 17468                  | 13541                      | 0                             | 3927                | 22.5%       |             |            |            | 0                            | 35                              | 78                                                 | 389               | 195                   | 3230                                  | 3892                 | 22.3%                |                     |                     |                                   |     |    |
| Feb'17                 |       | 16458                  | 13192                      | 0                             | 3266                | 19.8%       |             |            |            | 0                            | 33                              | 65                                                 | 323               | 162                   | 2653                                  | 3233                 | 19.6%                |                     |                     |                                   |     |    |
| Mar'17                 |       | 14894                  | 11380                      | 0                             | 3514                | 23.6%       |             |            |            | 0                            | 30                              | 70                                                 | 348               | 174                   | 2892                                  | 3484                 | 23.4%                |                     |                     |                                   |     |    |
| Apr'17                 |       | 12507                  | 11582                      | 0                             | 925                 | 7.4%        |             |            |            | 0                            | 25                              | 18                                                 | 90                | 45                    | 747                                   | 900                  | 7.2%                 |                     |                     |                                   |     |    |
| May'17                 |       | 13672                  | 11189                      | 0                             | 2483                | 18.2%       |             |            |            | 0                            | 27                              | 49                                                 | 246               | 123                   | 2038                                  | 2456                 | 18.0%                |                     |                     |                                   |     |    |
| Jun'17                 |       | 12322                  | 10634                      | 0                             | 1688                | 13.7%       |             |            |            | 0                            | 25                              | 33                                                 | 166               | 83                    | 1381                                  | 1663                 | 13.5%                |                     |                     |                                   |     |    |
| Jul'17                 | 17/18 | 11998                  | 8945                       | 0                             | 3053                | 25.4%       | 21515       | 16.9%      |            | 0                            | 24                              | 61                                                 | 303               | 151                   | 2514                                  | 3029                 | 25.2%                | 21261               | 16.7%               |                                   |     |    |
| Aug'17                 |       | 13674                  | 7550                       | 0                             | 6124                | 44.8%       |             |            |            | 0                            | 27                              | 122                                                | 610               | 305                   | 5060                                  | 6097                 | 44.6%                |                     |                     |                                   |     |    |
| Sep'17                 |       | 12886                  | 9989                       | 0                             | 2897                | 22.5%       |             |            |            | 0                            | 26                              | 57                                                 | 287               | 144                   | 2383                                  | 2871                 | 22.3%                |                     |                     |                                   |     |    |
| Oct'17                 |       | 11678                  | 10310                      | 0                             | 1368                | 11.7%       |             |            |            | 0                            | 23                              | 27                                                 | 134               | 67                    | 1116                                  | 1345                 | 11.5%                |                     |                     |                                   |     |    |
| Nov'17                 |       | 11399                  | 9218                       | 0                             | 2181                | 19.1%       |             |            |            | 0                            | 23                              | 43                                                 | 216               | 108                   | 1791                                  | 2158                 | 18.9%                |                     |                     |                                   |     |    |
| Dec'17                 |       | 11059                  | 11577                      | 0                             | -518                | -4.7%       |             |            |            | 0                            | 22                              | -11                                                | -54               | -27                   | -448                                  | -540                 | -4.9%                |                     |                     |                                   |     |    |
| Jan'18                 |       | 10605                  | 9780                       | 0                             | 825                 | 7.8%        |             |            |            | 0                            | 21                              | 16                                                 | 80                | 40                    | 667                                   | 804                  | 7.6%                 |                     |                     |                                   |     |    |
| Feb'18                 |       | 10246                  | 7888                       | 0                             | 2358                | 23.0%       |             |            |            | 0                            | 20                              | 47                                                 | 234               | 117                   | 1940                                  | 2338                 | 22.8%                |                     |                     |                                   |     |    |
| Mar'18                 |       | 7782                   | 7287                       | 0                             | 515                 | 6.6%        |             |            |            | 0                            | 16                              | 10                                                 | 50                | 25                    | 415                                   | 498                  | 6.4%                 |                     |                     |                                   |     |    |
| Apr'18                 |       | 8706                   | 7581                       | 0                             | 1125                | 12.9%       |             |            |            | 0                            | 17                              | 22                                                 | 111               | 55                    | 919                                   | 1108                 | 12.7%                |                     |                     |                                   |     |    |
| May'18                 |       | 8215                   | 7787                       | 0                             | 428                 | 5.2%        |             |            |            | 0                            | 16                              | 8                                                  | 41                | 21                    | 342                                   | 412                  | 5.0%                 |                     |                     |                                   |     |    |
| Jun'18                 |       | 8879                   | 7720                       | 0                             | 1159                | 13.1%       |             |            |            | 0                            | 18                              | 23                                                 | 114               | 57                    | 847                                   | 1141                 | 12.9%                |                     |                     |                                   |     |    |
| Jul'18                 | 18/19 | 9231                   | 7779                       | 0                             | 1452                | 15.7%       | 23263       | 16.6%      |            | 0                            | 408                             | 21                                                 | 104               | 52                    | 866                                   | 1044                 | 11.3%                | 18302               | 13.0%               |                                   |     |    |
| Aug'18                 |       | 10229                  | 8010                       | 0                             | 2219                | 21.7%       |             |            |            | 0                            | 410                             | 36                                                 | 181               | 90                    | 1501                                  | 1809                 | 17.7%                |                     |                     |                                   |     |    |
| Sep'18                 |       | 10328                  | 7656                       | 0                             | 2672                | 25.9%       |             |            |            | 0                            | 411                             | 45                                                 | 226               | 113                   | 1877                                  | 2261                 | 21.9%                |                     |                     |                                   |     |    |
| Oct'18                 |       | 10608                  | 8636                       | 0                             | 1972                | 18.6%       |             |            |            | 0                            | 411                             | 31                                                 | 156               | 78                    | 1295                                  | 1561                 | 14.7%                |                     |                     |                                   |     |    |
| Nov'18                 |       | 11672                  | 8577                       | 0                             | 3095                | 26.5%       |             |            |            | 0                            | 413                             | 54                                                 | 268               | 134                   | 2226                                  | 2682                 | 23.0%                |                     |                     |                                   |     |    |
| Dec'18                 |       | 11267                  | 10222                      | 0                             | 245                 | 2.2%        |             |            |            | 0                            | 413                             | -3                                                 | -17               | -8                    | -139                                  | -168                 | -1.5%                |                     |                     |                                   |     |    |
| Jan'19                 |       | 12708                  | 11504                      | 0                             | 1204                | 9.5%        |             |            |            | 0                            | 415                             | 16                                                 | 79                | 39                    | 655                                   | 789                  | 6.2%                 |                     |                     |                                   |     |    |
| Feb'19                 |       | 13477                  | 11353                      | 0                             | 2124                | 15.8%       |             |            |            | 0                            | 417                             | 34                                                 | 171               | 85                    | 1417                                  | 1707                 | 12.7%                |                     |                     |                                   |     |    |
| Mar'19                 |       | 12343                  | 10947                      | 0                             | 1396                | 11.3%       |             |            |            | 0                            | 415                             | 20                                                 | 98                | 49                    | 814                                   | 981                  | 8.0%                 |                     |                     |                                   |     |    |
| Apr'19                 |       | 14476                  | 10005                      | 0                             | 4471                | 30.9%       |             |            |            | 0                            | 419                             | 81                                                 | 405               | 203                   | 3363                                  | 4052                 | 28.0%                |                     |                     |                                   |     |    |
| May'19                 |       | 12394                  | 11415                      | 0                             | 979                 | 7.9%        |             |            |            | 0                            | 415                             | 11                                                 | 56                | 28                    | 584                                   | 719                  | 6.4%                 |                     |                     |                                   |     |    |
| Jun'19                 |       | 11791                  | 10357                      | 0                             | 1434                | 12.2%       |             |            |            | 0                            | 414                             | 20                                                 | 102               | 51                    | 847                                   | 1020                 | 8.7%                 |                     |                     |                                   |     |    |
| Jul'19                 | 19/20 | 11557                  | 8968                       | 0                             | 2589                | 22.4%       | 22040       | 14.0%      |            | 0                            | 413                             | 44                                                 | 218               | 109                   | 1806                                  | 2176                 | 18.8%                | 17044               | 10.8%               |                                   |     |    |
| Aug'19                 |       | 11089                  | 10462                      | 0                             | 627                 | 5.7%        |             |            |            | 0                            | 412                             | 4                                                  | 21                | 11                    | 178                                   | 215                  | 1.9%                 |                     |                     |                                   |     |    |
| Sep'19                 |       | 12721                  | 10724                      | 0                             | 1997                | 15.7%       |             |            |            | 0                            | 415                             | 32                                                 | 158               | 79                    | 1313                                  | 1582                 | 12.4%                |                     |                     |                                   |     |    |
| Oct'19                 |       | 11947                  | 10347                      | 0                             | 1600                | 13.4%       |             |            |            | 0                            | 414                             | 24                                                 | 119               | 59                    | 984                                   | 1186                 | 9.9%                 |                     |                     |                                   |     |    |
| Nov'19                 |       | 13068                  | 11376                      | 0                             | 1692                | 12.9%       |             |            |            | 0                            | 416                             | 26                                                 | 128               | 64                    | 1059                                  | 1276                 | 9.8%                 |                     |                     |                                   |     |    |
| Dec'19                 |       | 13065                  | 11922                      | 0                             | 1143                | 8.7%        |             |            |            | 0                            | 416                             | 15                                                 | 73                | 36                    | 603                                   | 727                  | 5.6%                 |                     |                     |                                   |     |    |
| Jan'20                 |       | 15070                  | 13211                      | 0                             | 1859                | 12.3%       |             |            |            | 0                            | 420                             | 29                                                 | 144               | 72                    | 1194                                  | 1439                 | 9.5%                 |                     |                     |                                   |     |    |
| Feb'20                 |       | 14146                  | 12419                      | 0                             | 1727                | 12.2%       |             |            |            | 0                            | 418                             | 26                                                 | 131               | 65                    | 1086                                  | 1309                 | 9.3%                 |                     |                     |                                   |     |    |
| Mar'20                 |       | 15664                  | 13900                      | 0                             | 1764                | 11.3%       |             |            |            | 0                            | 421                             | 27                                                 | 134               | 67                    | 1114                                  | 1343                 | 8.6%                 |                     |                     |                                   |     |    |
| Apr'20                 |       | 14361                  | 10761                      | 0                             | 3600                | 25.1%       |             |            |            | 0                            | 419                             | 64                                                 | 318               | 159                   | 2640                                  | 3181                 | 22.2%                |                     |                     |                                   |     |    |
| May'20                 |       | 12298                  | 10818                      | 0                             | 1480                | 12.0%       |             |            |            | 0                            | 415                             | 21                                                 | 107               | 53                    | 884                                   | 1065                 | 8.7%                 |                     |                     |                                   |     |    |
| Jun'20                 |       | 12922                  | 10960                      | 0                             | 1962                | 15.2%       |             |            |            | 0                            | 416                             | 31                                                 | 155               | 77                    | 1283                                  | 1546                 | 12.0%                |                     |                     |                                   |     |    |
| Jul'20                 | 20/21 | 11620                  | 10924                      | 0                             | 696                 | 6.0%        | 26490       | 15.5%      |            | 0                            | 413                             | 6                                                  | 28                | 14                    | 235                                   | 283                  | 2.4%                 | 21468               | 12.6%               |                                   |     |    |
| Aug'20                 |       | 13476                  | 13953                      | 0                             | -477                | -3.5%       |             |            |            | 0                            | 417                             | -18                                                | -89               | -45                   | -742                                  | -894                 | -6.0%                |                     |                     |                                   |     |    |
| Sep'20                 |       | 13312                  | 10684                      | 0                             | 2628                | 19.7%       |             |            |            | 0                            | 417                             | 44                                                 | 221               | 111                   | 1836                                  | 2212                 | 16.6%                |                     |                     |                                   |     |    |
| Oct'20                 |       | 12977                  | 15415                      | 0                             | -2438               | -18.8%      |             |            |            | 0                            | 416                             | -57                                                | -285              | -143                  | -2368                                 | -2854                | -22.0%               |                     |                     |                                   |     |    |
| Nov'20                 |       | 15167                  | 11197                      | 0                             | 3970                | 26.2%       |             |            |            | 0                            | 420                             | 71                                                 | 355               | 177                   | 2946                                  | 3550                 | 23.4%                |                     |                     |                                   |     |    |
| Dec'20                 |       | 14287                  | 10591                      | 0                             | 3696                | 25.9%       |             |            |            | 0                            | 419                             | 66                                                 | 328               | 164                   | 2720                                  | 3277                 | 22.9%                |                     |                     |                                   |     |    |
| Jan'21                 |       | 18047                  | 14820                      | 0                             | 3127                | 17.3%       |             |            |            | 0                            | 426                             | 54                                                 | 270               | 135                   | 2242                                  | 2701                 | 15.0%                |                     |                     |                                   |     |    |
| Feb'21                 |       | 17190                  | 13163                      | 0                             | 4027                | 33.6%       |             |            |            | 0                            | 424                             | 107                                                | 538               | 268                   | 4448                                  | 5358                 | 31.2%                |                     |                     |                                   |     |    |
| Mar'21                 |       | 13656                  | 11185                      | 0                             | 2471                | 18.1%       |             |            |            | 0                            | 417                             | 41                                                 | 205               | 103                   | 1704                                  | 2053                 | 15.0%                |                     |                     |                                   |     |    |
| Apr'21                 |       | 14789                  | 13055                      | 0                             | 1734                | 11.7%       |             |            |            | 0                            | 420                             | 26                                                 | 131               | 66                    | 1091                                  | 1314                 | 8.9%                 |                     |                     |                                   |     |    |
| May'21                 |       | 13487                  | 11613                      | 0                             | 1874                | 13.9%       |             |            |            | 0                            | 417                             | 29                                                 | 146               | 73                    | 1209                                  | 1457                 | 10.8%                |                     |                     |                                   |     |    |
| Jun'21                 |       | 12998                  | 8572                       | 0                             | 3426                | 26.4%       |             |            |            | 0                            | 416                             | 60                                                 | 301               | 150                   | 2498                                  | 3010                 | 23.2%                |                     |                     |                                   |     |    |
| Jul'21                 | 21/22 | 11286                  | 11482                      | 0                             | -196                | -1.7%       | 18314       | 10.2%      |            | 0                            | 998                             | -24                                                | -119              | -80                   | -990                                  | -1193                | -10.6%               | 6255                | 3.5%                |                                   |     |    |
| Aug'21                 |       | 14058                  | 16189                      | 0                             | -2131               | -15.2%      |             |            |            | 0                            | 1003                            | -63                                                | -313              | -157                  | -2602                                 | -3135                | -22.3%               |                     |                     |                                   |     |    |
| Sep'21                 |       | 12276                  | 6008                       | 0                             | 6268                | 51.1%       |             |            |            | 0                            | 1005                            | 105                                                | 527               | 263                   | 4373                                  | 5267                 | 42.8%                |                     |                     |                                   |     |    |
| Oct'21                 |       | 16824                  | 12821                      | 0                             | 2803                | 17.9%       |             |            |            | 0                            | 1006                            | 30                                                 | 180               | 90                    | 1491                                  | 1797                 | 11.5%                |                     |                     |                                   |     |    |
| Nov'21                 |       | 15983                  | 11249                      | 0                             | 4734                | 29.6%       |             |            |            | 0                            | 1007                            | 75                                                 | 373               | 186                   | 3094                                  | 3727                 | 23.3%                |                     |                     |                                   |     |    |
| Dec'21                 |       | 8012                   | 15399                      | 0                             | -7387               | -92.2%      |             |            |            | 0                            | 991                             | -168                                               | -838              | -419                  | -8954                                 | -8378                | -104.6%              |                     |                     |                                   |     |    |
| Jan'22                 |       | 24330                  | 15699                      | 0                             | 8631                | 35.5%       |             |            |            | 0                            | 1024                            | 152                                                | 761               | 380                   | 6314                                  | 7607                 | 31.3%                |                     |                     |                                   |     |    |
| Feb'22                 |       | 17892                  | 12682                      | 0                             | 5210                | 19.2%       |             |            |            | 0                            | 1008                            | -53                                                | -267              | -108                  | -2217                                 | -2643                | -16.4%               |                     |                     |                                   |     |    |
| Mar'22                 |       | 16408                  | 13858                      | 0                             | 2550                | 15.5%       |             |            |            | 0                            | 1008                            | 31                                                 | 154               | 77                    | 1280                                  | 1542                 | 9.4%                 |                     |                     |                                   |     |    |
| Apr'22                 |       | 15647                  | 15144                      | 0                             | 503                 | 3.2%        |             |            |            | 0                            | 1006                            | -10                                                | -50               | -25                   | -418                                  | -504                 | -3.2%                |                     |                     |                                   |     |    |
| May'22                 |       | 15269                  | 13165                      | 0                             | 2104                | 13.8%       |             |            |            | 0                            | 1006                            | 22                                                 | 110               | 55                    | 912                                   | 1099                 | 7.2%                 |                     |                     |                                   |     |    |
| Jun'22                 |       | 14266                  | 12166                      | 0                             | 2100                | 12.7%       |             |            |            | 0                            | 1006                            | 22                                                 | 110               | 55                    | 910                                   | 1097                 | 7.2%                 |                     |                     |                                   |     |    |
| Jul'22                 | 22/23 | 9477                   | 10334                      | 0                             | -857                | -9.0%       | 19802       | 11.2%      |            | 0                            | 994                             | -37                                                | -185              | -93                   | -1536                                 | -1851                | -19.5%               | 7749                | 4.4%                |                                   |     |    |
| Aug'22                 |       | 13235                  | 13220                      | 0                             | 15                  | 0.1%        |             |            |            | 0                            | 1001                            | -20                                                | -99               | -49                   | -819                                  | -987                 | -7.5%                |                     |                     |                                   |     |    |
| Sep'22                 |       | 16436                  | 10965                      | 0                             | 5471                | 33.3%       |             |            |            | 0                            | 1008                            | 89                                                 | 446               | 223                   | 3704                                  | 4463                 | 27.2%                |                     |                     |                                   |     |    |
| Oct'22                 |       | 13470                  | 13658                      | 0                             | -1887               | -2.4%       |             |            |            | 0                            | 1002                            | -119                                               | -59               | -42                   | -987                                  | -1190                | -8.8%                |                     |                     |                                   |     |    |
| Nov'22                 |       | 17090                  | 15323                      | 0                             | 1767                | 10.3%       |             |            |            | 0                            | 1009                            | 15                                                 | 76                | 38                    | 629                                   | 758                  | 4.4%                 |                     |                     |                                   |     |    |
| Dec'22                 |       | 15662                  | 13809                      | 0                             | 1853                | 11.8%       |             |            |            | 0                            | 1006                            | 17                                                 | 85                | 42                    | 702                                   | 846                  | 5.4%                 |                     |                     |                                   |     |    |
| Jan'23                 |       | 17871                  | 15819                      | 0                             | 2052                | 11.5%       |             |            |            | 0                            | 1011                            | 21                                                 | 104               | 52                    | 864                                   | 1041                 | 5.8%                 |                     |                     |                                   |     |    |
| Feb'23                 |       | 18379                  | 15783                      | 0                             | 2596                | 14.1%       |             |            |            | 0                            | 1012                            | 32                                                 | 158               | 79                    | 1315                                  | 1584                 | 8.6%                 |                     |                     |                                   |     |    |
| Mar'23                 |       | 14201                  | 12373                      | 0                             | 1928                | 12.9%       |             |            |            | 0                            | 1003                            | 82                                                 | 41                | 103                   | 87                                    | 825                  | 5.8%                 |                     |                     |                                   |     |    |
| Apr'23                 |       | 14642                  | 12078                      | 0                             | 2564                | 17.5%       |             |            |            | 0                            | 1004                            | 31                                                 | 156               | 78                    | 1295                                  | 1560                 | 10.7%                |                     |                     |                                   |     |    |
| May'23                 |       | 13856                  | 11948                      | 0                             | 1908                | 13.8%       |             |            |            | 0                            | 1003                            | 18                                                 | 91                | 45                    | 752                                   | 906                  | 6.5%                 |                     |                     |                                   |     |    |
| Jun'23                 |       | 12228                  | 11436                      | 0                             | 792                 | 6.5%        |             |            |            | 0                            | 999                             | -4                                                 | -21               | -10                   | -172                                  | -208                 | -1.7%                |                     |                     |                                   |     |    |
| Jul'23                 | 23/24 | 9477                   | 13713                      | 0                             | -4238               | -44.7%      | 21053       | 11.3%      |            | 0                            | 1004                            | -105                                               | -423              | -262                  | -4341                                 | -4230                | -55.2%               | 8982                | 4.8%                |                                   |     |    |
| Aug'23                 |       | 13209                  | 7681                       | 0                             | 5528                | 41.9%       |             |            |            | 0                            | 1001                            | 91                                                 | 453               | 226                   | 3757                                  | 4527                 | 34.3%                |                     |                     |                                   |     |    |
| Sep'23                 |       | 12982                  | 12900                      | 0                             | 82                  | 0.6%        |             |            |            | 0                            | 1001                            | -18                                                | -92               | -46                   | -763                                  | -919                 | -7.1%                |                     |                     |                                   |     |    |
| Oct'23                 |       | 14096                  | 12635                      | 0                             | 1461                | 10.4%       |             |            |            | 0                            | 1003                            | 9                                                  | 46                | 23                    | 380                                   | 458                  | 3.2%                 |                     |                     |                                   |     |    |
| Nov'23                 |       | 15584                  | 13544                      | 0                             | 2040                | 15.3%       |             |            |            | 0                            | 1006                            | 13                                                 | 153               | 77                    | 1273                                  | 1534                 | 9.8%                 |                     |                     |                                   |     |    |
| Dec'23                 |       | 17827                  | 15654                      | 0                             | 2173                | 12.2%       |             |            |            | 0                            | 1011                            | 23                                                 | 116               | 58                    | 965                                   | 1162                 | 6.5%                 |                     |                     |                                   |     |    |
| Jan'24                 |       | 19403                  | 15129                      | 0                             | 4274                | 22.0%       |             |            |            | 0                            | 1014                            | 65                                                 | 326               | 163                   | 2706                                  | 3260                 | 16.8%                |                     |                     |                                   |     |    |
| Feb'24                 |       | 20004                  | 15707                      | 0                             | 4297                | 21.5%       |             |            |            | 0                            | 1015                            | 66                                                 | 328               | 164                   | 2724                                  | 3282                 | 16.4%                |                     |                     |                                   |     |    |
| Mar'24                 |       | 16132                  | 15182                      | 0                             | -45                 | -0.3%       |             |            |            | 0                            | 1007                            | -21                                                | -105              | -51                   | -874                                  | -1063                | -6.5%                |                     |                     |                                   |     |    |
| Apr'24                 |       | 17693                  | 20046                      | 0                             | -2365               | -13.4%      |             |            |            | 0                            | 1010                            | -68                                                | -338              | -169                  | -2801                                 | -3375                | -19.1%               |                     |                     |                                   |     |    |
| May'24                 |       | 15187                  | 8358                       | 0                             | 6829                | 45.0%       |             |            |            | 0                            | 1005                            | 116                                                | 582               | 291                   | 4834                                  | 5824                 | 38.3%                |                     |                     |                                   |     |    |
| Jun'24                 |       | 13956                  |                            |                               |                     |             |             |            |            |                              |                                 |                                                    |                   |                       |                                       |                      |                      |                     |                     |                                   |     |    |



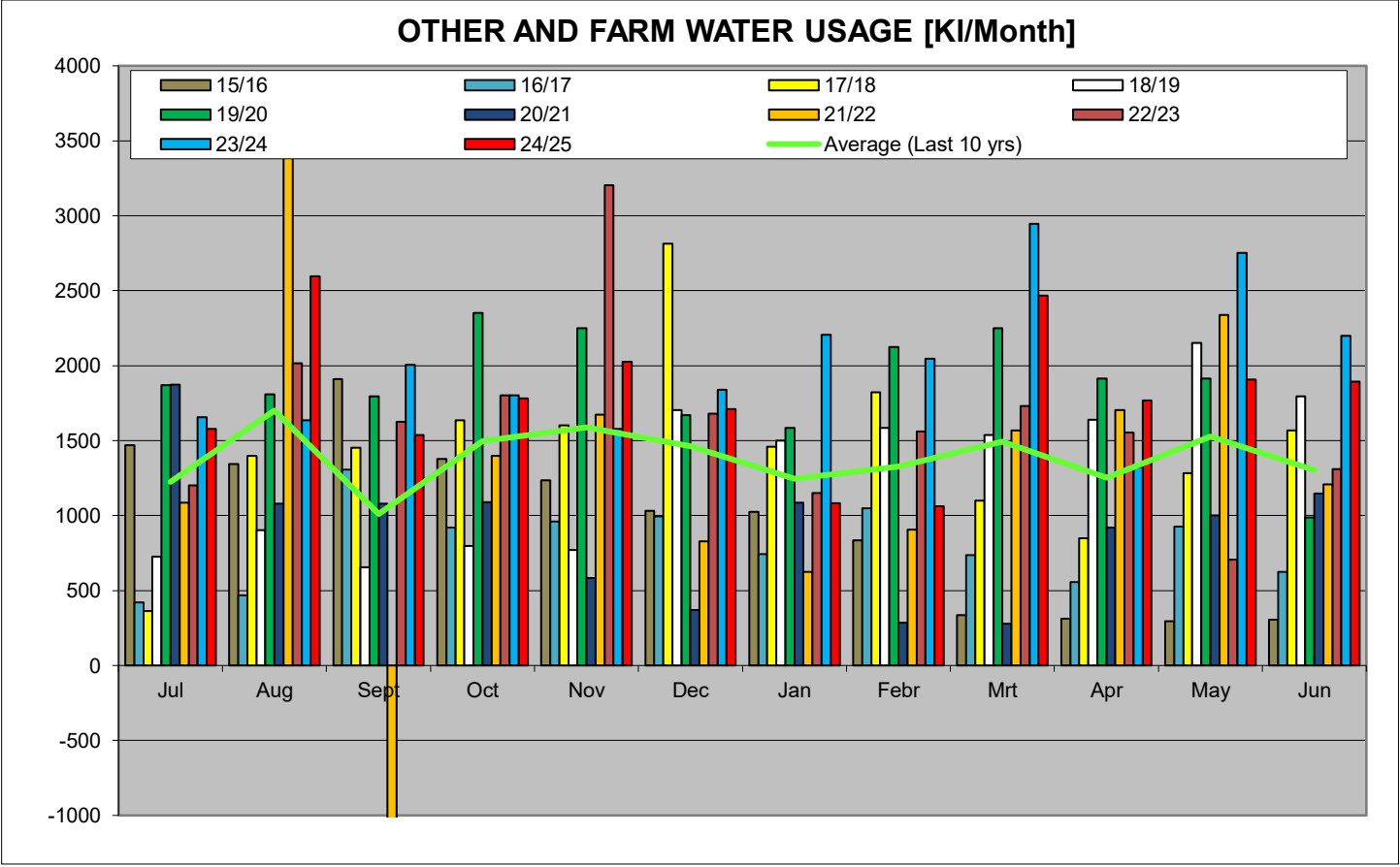
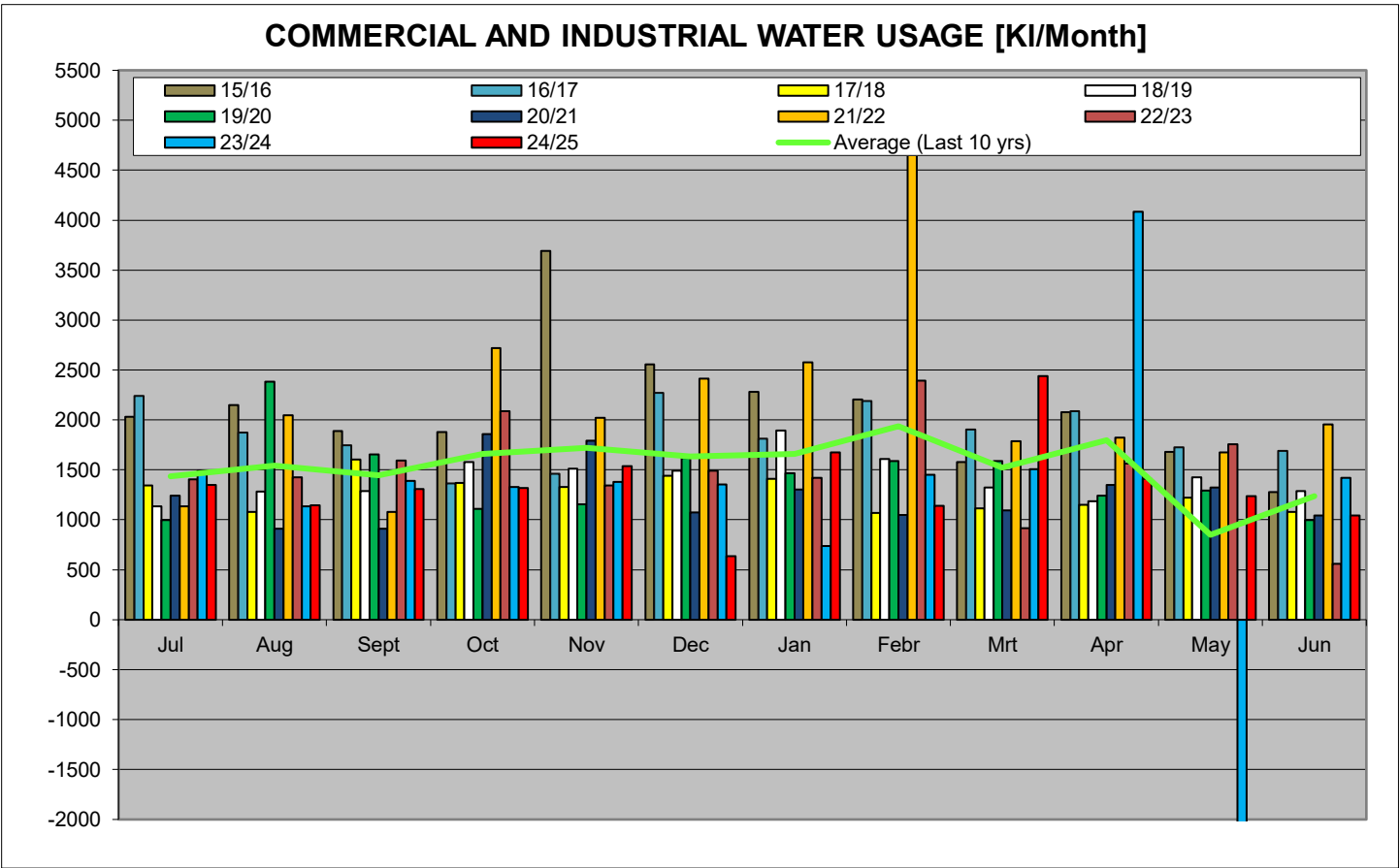
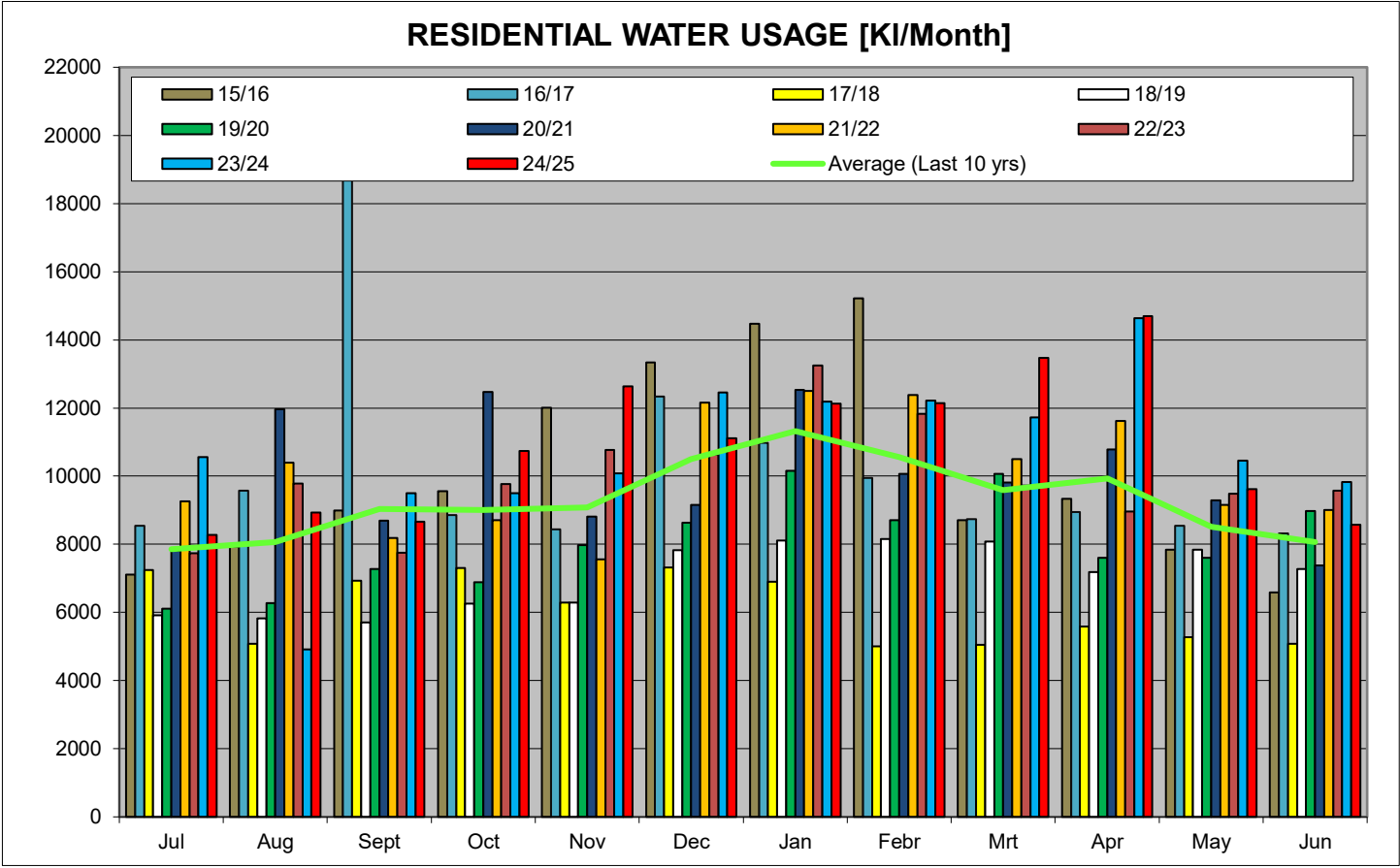
WATER BALANCE AND USAGE FOR RIEBEEK WES DISTRIBUTION SYSTEM



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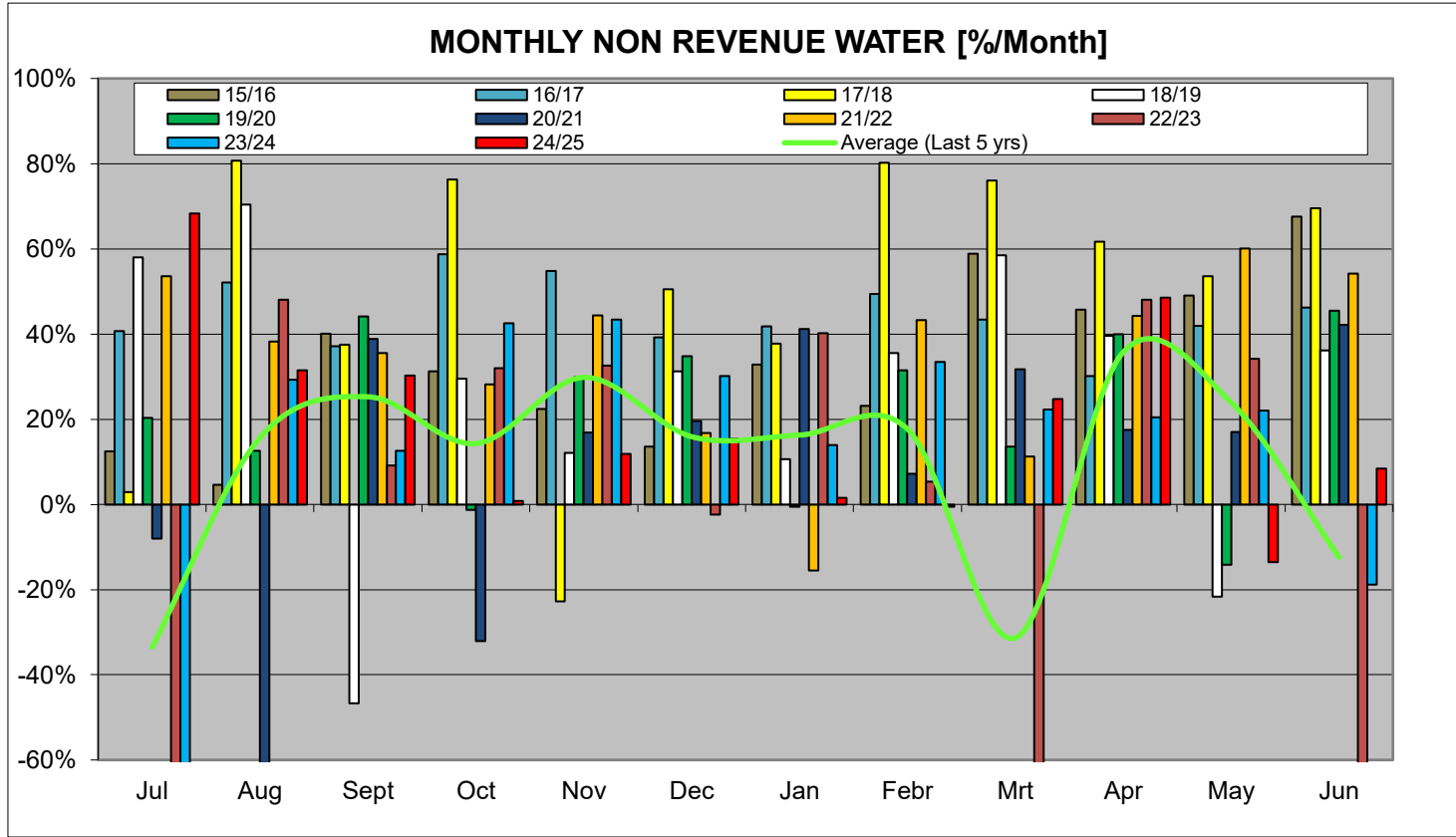
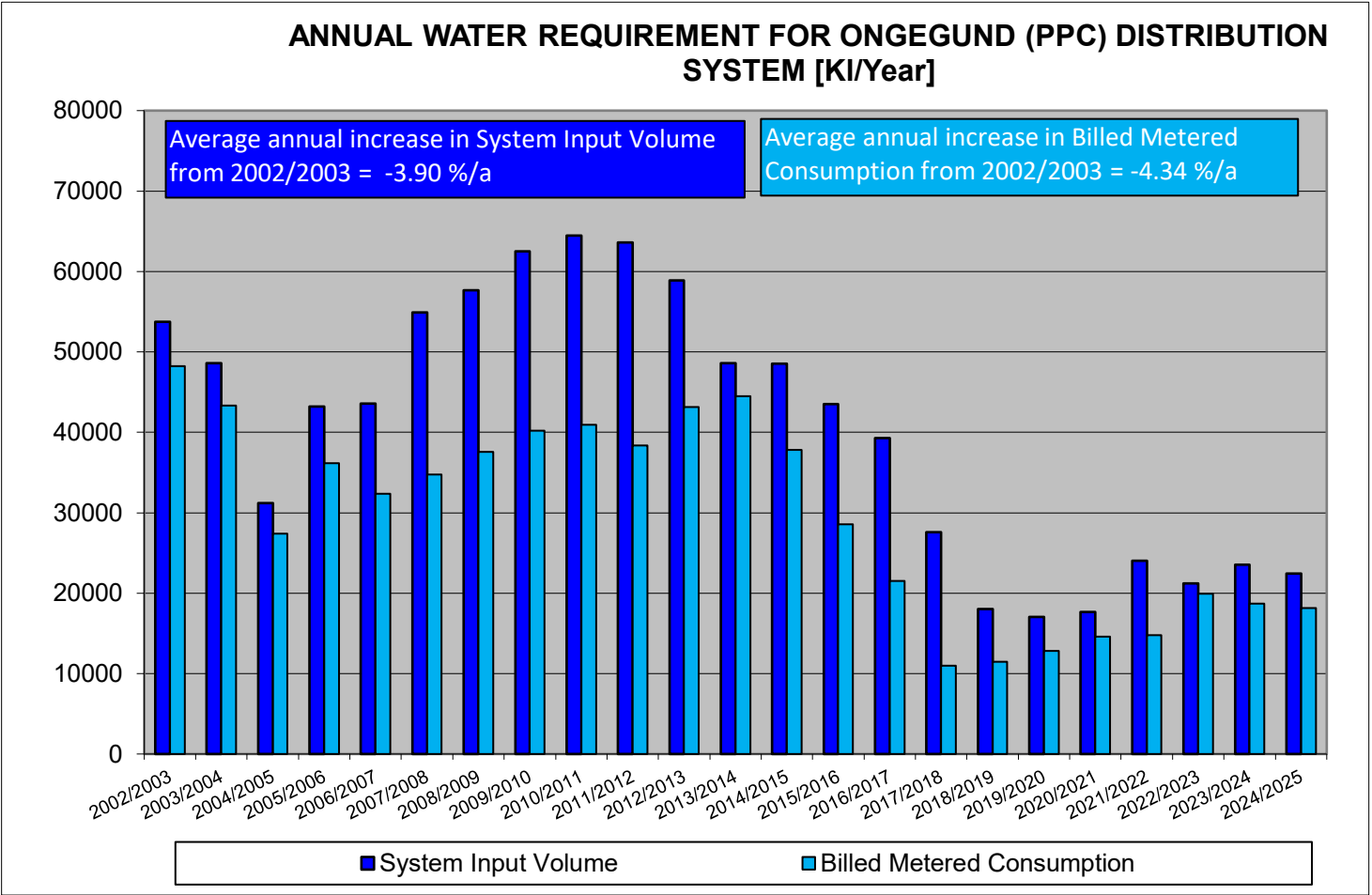
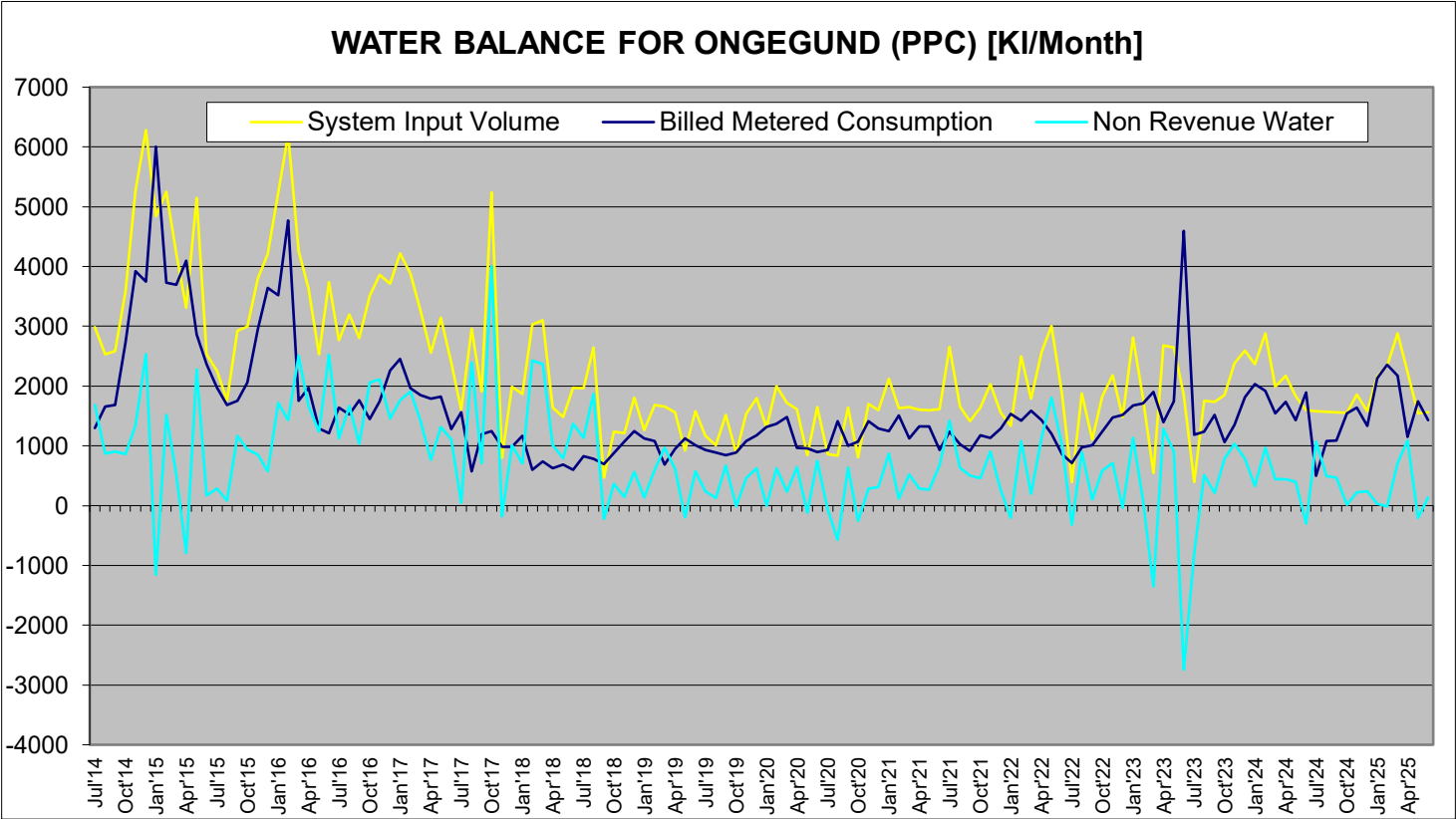


| SWARTLAND MUNICIPALITY |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
|------------------------|-------|---------------------|------------------------|----------------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|-------------------------------|---------------------|-------------------|-----------------------|-------------|----------------------------------|---------|----------------------|----------------------|---------------------|---------------------|
| Ongegend (PPC)         |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Month                  | Year  | System Input Volume | TREATED WATER SUPPLY   |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |
|                        |       |                     | Revenue Water          |                            | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Non Revenue Water (NRW)       |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption |             |             |            |            |                              |                                 | Billed Un-metered Consumption | Illegal Connections | Apparent Losses   |                       | Real Losses |                                  |         |                      |                      |                     |                     |
|                        |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     | Inaccurate Meters | Administrative Errors |             | Leaks, Reservoirs overflow, etc. |         |                      |                      |                     |                     |
|                        |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  | 2%      |                      |                      |                     |                     |
| [m³]                   | [m³]  | [m³]                | [m³]                   | [m³]                       | [m³]        | [m³]        | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                          | [m³]                | [m³]              | [m³]                  | [m³]        | [m³]                             | [m³]    | [m³]                 |                      |                     |                     |
| Jan01                  | 00/01 |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Feb01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Mrt01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Apr01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| May01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Jun01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Jul01                  | 01/02 |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Aug01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Sep01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Oct01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Nov01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Dec01                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Jan02                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Feb02                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Mrt02                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Apr02                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| May02                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Jun02                  |       |                     |                        |                            |             |             |            |            |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |
| Jul02                  | 02/03 |                     |                        | 0                          | 0           | #DIV/0!     |            |            | 0                            | 0                               | 0                             | 0                   | 0                 | 0                     | 0           | 0                                | #DIV/0! |                      |                      |                     |                     |
| Aug02                  |       | 3832                | 1551                   | 0                          | 2281        | 59.5%       |            |            | 0                            | 8                               | 45                            | 227                 | 114               | 1887                  | 2273        | 59.3%                            |         |                      |                      |                     |                     |
| Sep02                  |       | 3213                | 1674                   | 0                          | 1539        | 47.9%       |            |            | 0                            | 6                               | 31                            | 153                 | 77                | 1272                  | 1533        | 47.7%                            |         |                      |                      |                     |                     |
| Oct02                  |       | 2845                | 2285                   | 0                          | 560         | 19.7%       |            |            | 0                            | 6                               | 11                            | 55                  | 28                | 460                   | 554         | 19.5%                            |         |                      |                      |                     |                     |
| Nov02                  |       | 4109                | 3055                   | 0                          | 1054        | 25.7%       |            |            | 0                            | 8                               | 21                            | 105                 | 52                | 868                   | 1046        | 25.5%                            |         |                      |                      |                     |                     |
| Dec02                  |       | 6271                | 5785                   | 0                          | 486         | 7.7%        |            |            | 0                            | 13                              | 9                             | 47                  | 24                | 393                   | 473         | 7.2%                             |         |                      |                      |                     |                     |
| Jan03                  |       | 8512                | 7595                   | 0                          | 917         | 10.8%       |            |            | 0                            | 17                              | 18                            | 90                  | 45                | 747                   | 900         | 10.6%                            | 5445    | 10.1%                |                      |                     |                     |
| Feb03                  |       | 5876                | 7007                   | 0                          | -1131       | -19.2%      |            |            | 0                            | 12                              | -23                           | -114                | -57               | -948                  | -1143       | -19.4%                           |         |                      |                      |                     |                     |
| Mrt03                  |       | 3958                | 8282                   | 0                          | -4324       | -109.2%     |            |            | 0                            | 8                               | -87                           | -433                | -217              | -3595                 | -4332       | -109.4%                          |         |                      |                      |                     |                     |
| Apr03                  |       | 6388                | 4144                   | 0                          | 2244        | 35.1%       |            |            | 0                            | 13                              | 45                            | 223                 | 112               | 1852                  | 2231        | 34.9%                            |         |                      |                      |                     |                     |
| May03                  |       | 6640                | 4885                   | 0                          | 1755        | 26.4%       |            |            | 0                            | 13                              | 35                            | 174                 | 87                | 1446                  | 1742        | 26.2%                            |         |                      |                      |                     |                     |
| Jun03                  |       | 2121                | 1949                   | 0                          | 172         | 8.1%        |            |            | 0                            | 4                               | 3                             | 17                  | 8                 | 139                   | 168         | 7.9%                             |         |                      |                      |                     |                     |
| Jul03                  | 2459  | 2333                | 0                      | 126                        | 5.1%        |             |            | 0          | 5                            | 2                               | 12                            | 6                   | 100               | 121                   | 4.9%        |                                  |         |                      |                      |                     |                     |
| Aug03                  | 1990  | 1480                | 0                      | 510                        | 25.6%       |             |            | 0          | 4                            | 10                              | 51                            | 25                  | 420               | 506                   | 25.4%       |                                  |         |                      |                      |                     |                     |
| Sep03                  | 2990  | 1898                | 0                      | 1092                       | 36.5%       |             |            | 0          | 6                            | 22                              | 109                           | 54                  | 901               | 1086                  | 36.3%       |                                  |         |                      |                      |                     |                     |
| Oct03                  | 2639  | 1989                | 0                      | 650                        | 24.6%       |             |            | 0          | 5                            | 13                              | 64                            | 32                  | 535               | 645                   | 24.4%       |                                  |         |                      |                      |                     |                     |
| Nov03                  | 3904  | 4067                | 0                      | -163                       | -4.2%       |             |            | 0          | 8                            | -3                              | -17                           | -9                  | -142              | -171                  | -4.4%       |                                  |         |                      |                      |                     |                     |
| Dec03                  | 4719  | 4242                | 0                      | 477                        | 10.1%       |             |            | 0          | 9                            | 9                               | 47                            | 23                  | 388               | 468                   | 9.9%        | 5201                             | 10.7%   |                      |                      |                     |                     |
| Jan04                  | 3654  | 5085                | 0                      | -1431                      | -39.2%      |             |            | 0          | 7                            | -29                             | -144                          | -72                 | -1194             | -1438                 | -39.4%      |                                  |         |                      |                      |                     |                     |
| Feb04                  | 3055  | 5783                | 0                      | -2728                      | -89.3%      |             |            | 0          | 6                            | -55                             | -273                          | -137                | -2269             | -2734                 | -89.5%      |                                  |         |                      |                      |                     |                     |
| Mrt04                  | 6137  | 5254                | 0                      | 883                        | 14.4%       |             |            | 0          | 12                           | 17                              | 87                            | 44                  | 723               | 871                   | 14.2%       |                                  |         |                      |                      |                     |                     |
| Apr04                  | 8116  | 5114                | 0                      | 3002                       | 37.0%       |             |            | 0          | 16                           | 80                              | 299                           | 149                 | 2478              | 2986                  | 36.8%       |                                  |         |                      |                      |                     |                     |
| May04                  | 4981  | 3428                | 0                      | 1553                       | 31.2%       |             |            | 0          | 10                           | 31                              | 154                           | 77                  | 1281              | 1543                  | 31.0%       |                                  |         |                      |                      |                     |                     |
| Jun04                  | 3956  | 2629                | 0                      | 1327                       | 33.5%       |             |            | 0          | 8                            | 26                              | 132                           | 66                  | 1095              | 1319                  | 33.3%       |                                  |         |                      |                      |                     |                     |
| Jul04                  | 2064  | 1545                | 0                      | 519                        | 25.1%       |             |            | 0          | 4                            | 10                              | 51                            | 26                  | 427               | 515                   | 24.9%       |                                  |         |                      |                      |                     |                     |
| Aug04                  | 1202  | 1965                | 0                      | -363                       | -30.2%      |             |            | 0          | 2                            | -7                              | -37                           | -18                 | -303              | -365                  | -30.4%      |                                  |         |                      |                      |                     |                     |
| Sep04                  | 3144  | 1918                | 0                      | 1226                       | 39.0%       |             |            | 0          | 6                            | 24                              | 122                           | 61                  | 1012              | 1220                  | 38.8%       |                                  |         |                      |                      |                     |                     |
| Oct04                  | 2639  | 3209                | 0                      | -570                       | -21.8%      |             |            | 0          | 5                            | -12                             | -58                           | -29                 | -477              | -575                  | -21.8%      |                                  |         |                      |                      |                     |                     |
| Nov04                  | 3904  | 2593                | 0                      | 1311                       | 33.6%       |             |            | 0          | 8                            | 26                              | 130                           | 65                  | 1082              | 1303                  | 33.4%       |                                  |         |                      |                      |                     |                     |
| Dec04                  | 4339  | 3310                | 0                      | 1029                       | 23.7%       |             |            | 0          | 9                            | 20                              | 102                           | 51                  | 847               | 1020                  | 23.5%       | 3687                             | 11.8%   |                      |                      |                     |                     |
| Jan05                  | 1913  | 3485                | 0                      | -1572                      | -82.2%      |             |            | 0          | 4                            | -32                             | -158                          | -79                 | -1308             | -1576                 | -82.4%      |                                  |         |                      |                      |                     |                     |
| Feb05                  | 3536  | 2988                | 0                      | 548                        | 15.5%       |             |            | 0          | 7                            | 11                              | 54                            | 27                  | 449               | 541                   | 15.3%       |                                  |         |                      |                      |                     |                     |
| Mrt05                  | 2015  | 2171                | 0                      | -156                       | -7.7%       |             |            | 0          | 4                            | -3                              | -16                           | -8                  | -133              | -160                  | -7.9%       |                                  |         |                      |                      |                     |                     |
| Apr05                  | 3283  | 2062                | 0                      | 1221                       | 37.2%       |             |            | 0          | 7                            | 24                              | 121                           | 61                  | 1008              | 1214                  | 37.0%       |                                  |         |                      |                      |                     |                     |
| May05                  | 1398  | 1315                | 0                      | 83                         | 5.9%        |             |            | 0          | 3                            | 2                               | 8                             | 4                   | 80                | 83                    | 5.7%        |                                  |         |                      |                      |                     |                     |
| Jun05                  | 1733  | 1260                | 0                      | 473                        | 27.3%       |             |            | 0          | 3                            | 9                               | 47                            | 23                  | 390               | 470                   | 27.1%       |                                  |         |                      |                      |                     |                     |
| Jul05                  | 1546  | 2825                | 0                      | -1279                      | -82.7%      |             |            | 0          | 3                            | -26                             | -128                          | -64                 | -1064             | -1282                 | -82.9%      |                                  |         |                      |                      |                     |                     |
| Aug05                  | 3521  | 1530                | 0                      | 1991                       | 56.5%       |             |            | 0          | 7                            | 40                              | 198                           | 99                  | 1647              | 1984                  | 56.3%       |                                  |         |                      |                      |                     |                     |
| Sep05                  | 1499  | 1440                | 0                      | 59                         | 3.9%        |             |            | 0          | 3                            | 1                               | 6                             | 3                   | 46                | 56                    | 3.7%        |                                  |         |                      |                      |                     |                     |
| Oct05                  | 1503  | 1771                | 0                      | -268                       | -17.8%      |             |            | 0          | 3                            | -5                              | -27                           | -14                 | -225              | -271                  | -18.0%      |                                  |         |                      |                      |                     |                     |
| Nov05                  | 3177  | 2828                | 0                      | 349                        | 11.0%       |             |            | 0          | 6                            | 7                               | 34                            | 17                  | 284               | 343                   | 10.8%       |                                  |         |                      |                      |                     |                     |
| Dec05                  | 5489  | 3575                | 0                      | 1914                       | 34.9%       |             |            | 0          | 11                           | 38                              | 190                           | 95                  | 1580              | 1903                  | 34.7%       | 6959                             | 16.1%   |                      |                      |                     |                     |
| Jan06                  | 7335  | 6863                | 0                      | 472                        | 6.4%        |             |            | 0          | 15                           | 9                               | 46                            | 23                  | 380               | 457                   | 6.2%        |                                  |         |                      |                      |                     |                     |
| Feb06                  | 6311  | 5096                | 0                      | 1215                       | 19.3%       |             |            | 0          | 13                           | 24                              | 120                           | 60                  | 998               | 1202                  | 19.1%       |                                  |         |                      |                      |                     |                     |
| Mrt06                  | 3673  | 3593                | 0                      | 80                         | 2.2%        |             |            | 0          | 7                            | 1                               | 7                             | 4                   | 60                | 73                    | 2.0%        |                                  |         |                      |                      |                     |                     |
| Apr06                  | 3550  | 3024                | 0                      | 526                        | 14.8%       |             |            | 0          | 7                            | 10                              | 52                            | 26                  | 431               | 519                   | 14.6%       |                                  |         |                      |                      |                     |                     |
| May06                  | 3669  | 2325                | 0                      | 1344                       | 36.6%       |             |            | 0          | 7                            | 27                              | 134                           | 67                  | 1109              | 1337                  | 36.4%       |                                  |         |                      |                      |                     |                     |
| Jun06                  | 1952  | 1309                | 0                      | 643                        | 32.9%       |             |            | 0          | 4                            | 13                              | 64                            | 32                  | 639               | 639                   | 32.7%       |                                  |         |                      |                      |                     |                     |
| Jul06                  | 2303  | 1406                | 0                      | 897                        | 38.9%       |             |            | 0          | 5                            | 18                              | 89                            | 45                  | 741               | 892                   | 38.7%       |                                  |         |                      |                      |                     |                     |
| Aug06                  | 2307  | 1635                | 0                      | 672                        | 29.1%       |             |            | 0          | 5                            | 13                              | 67                            | 33                  | 554               | 667                   | 28.9%       |                                  |         |                      |                      |                     |                     |
| Sep06                  | 2428  | 1650                | 0                      | 778                        | 32.0%       |             |            | 0          | 5                            | 15                              | 77                            | 39                  | 642               | 773                   | 31.8%       |                                  |         |                      |                      |                     |                     |
| Oct06                  | 5162  | 1683                | 0                      | 3479                       | 67.4%       |             |            | 0          | 10                           | 69                              | 347                           | 173                 | 2879              | 3469                  | 67.2%       |                                  |         |                      |                      |                     |                     |
| Nov06                  | 4588  | 2799                | 0                      | 1799                       | 39.1%       |             |            | 0          | 9                            | 36                              | 179                           | 89                  | 1486              | 1790                  | 38.9%       |                                  |         |                      |                      |                     |                     |
| Dec06                  | 3357  | 3994                | 0                      | -637                       | -19.0%      |             |            | 0          | 7                            | -13                             | -64                           | -32                 | -534              | -644                  | -19.2%      |                                  |         |                      |                      |                     |                     |
| Jan07                  | 5350  | 3674                | 0                      | 1676                       | 31.3%       |             |            | 0          | 11                           | 33                              | 167                           | 83                  | 1382              | 1665                  | 31.1%       | 11085                            | 25.5%   |                      |                      |                     |                     |
| Feb07                  | 5812  | 3954                | 0                      | 1858                       | 32.0%       |             |            | 0          | 12                           | 37                              | 185                           | 92                  | 1532              | 1846                  | 31.8%       |                                  |         |                      |                      |                     |                     |
| Mrt07                  | 3709  | 3845                | 0                      | -136                       | -3.7%       |             |            | 0          | 7                            | -3                              | -14                           | -7                  | -119              | -143                  | -3.9%       |                                  |         |                      |                      |                     |                     |
| Apr07                  | 4630  | 4089                | 0                      | 541                        | 11.7%       |             |            | 0          | 9                            | 11                              | 53                            | 27                  | 441               | 532                   | 11.5%       |                                  |         |                      |                      |                     |                     |
| May07                  | 2322  | 2058                | 0                      | 264                        | 11.4%       |             |            | 0          |                              |                                 |                               |                     |                   |                       |             |                                  |         |                      |                      |                     |                     |

| SWARTLAND MUNICIPALITY |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     |                                   |     |    |
|------------------------|-------|---------------------|------------------------|----------------------------|-------------------------------|-------------|-------------------------|------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------------------|----------------------|----------------------|---------------------|---------------------|-----------------------------------|-----|----|
| Ongegend (PPC)         |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     |                                   |     |    |
| TREATED WATER SUPPLY   |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     |                                   |     |    |
| Month                  | Year  | System Input Volume | Revenue Water          |                            |                               |             | Non Revenue Water (NRW) |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     |                                   |     |    |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW             | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       | Real Losses Leaks, Reservoirs overflow, etc. | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                                   |     |    |
|                        |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors |                                              |                      |                      |                     |                     |                                   |     |    |
|                        |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     | Estimated Percentages (Variables) |     |    |
|                        |       |                     |                        |                            |                               |             |                         |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     | 2%                                | 10% | 5% |
| [m³]                   | [m³]  | [m³]                | [m³]                   | [%]                        | [m³]                          | [%]         | [m³]                    | [%]        | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]                  | [%]                                          | [m³]                 | [%]                  |                     |                     |                                   |     |    |
| Jul17                  | 17/18 | 1604                | 1558                   | 0                          | 46                            | 2.9%        |                         |            |            | 0                            | 3                               | 1                   | 4                 | 2                     | 36                                           | 43                   | 2                    | 2.7%                |                     |                                   |     |    |
| Aug17                  |       | 2961                | 571                    | 0                          | 2390                          | 80.7%       |                         |            |            | 0                            | 6                               | 48                  | 238               | 119                   | 1979                                         | 2384                 | 80.5%                |                     |                     |                                   |     |    |
| Sep17                  |       | 1912                | 1195                   | 0                          | 717                           | 37.5%       |                         |            |            | 0                            | 4                               | 14                  | 71                | 36                    | 592                                          | 713                  | 37.3%                |                     |                     |                                   |     |    |
| Oct17                  |       | 5246                | 1243                   | 0                          | 4003                          | 76.3%       |                         |            |            | 0                            | 10                              | 80                  | 399               | 200                   | 3314                                         | 3993                 | 76.1%                |                     |                     |                                   |     |    |
| Nov17                  |       | 799                 | 981                    | 0                          | -182                          | -22.8%      |                         |            |            | 0                            | 2                               | -4                  | -18               | -4                    | -152                                         | -184                 | -23.0%               |                     |                     |                                   |     |    |
| Dec17                  |       | 1993                | 987                    | 0                          | 1006                          | 50.5%       |                         |            |            | 0                            | 4                               | 20                  | 100               | 50                    | 832                                          | 1002                 | 50.3%                |                     |                     |                                   |     |    |
| Jan18                  |       | 1871                | 1165                   | 0                          | 706                           | 37.7%       |                         |            | 16655      | 60.3%                        | 0                               | 4                   | 14                | 70                    | 35                                           | 583                  | 702                  | 37.5%               |                     |                                   |     |    |
| Feb18                  |       | 3028                | 598                    | 0                          | 2430                          | 80.3%       |                         |            |            | 0                            | 6                               | 48                  | 242               | 121                   | 2012                                         | 2424                 | 80.1%                |                     |                     |                                   |     |    |
| Mar18                  |       | 3103                | 742                    | 0                          | 2361                          | 76.1%       |                         |            |            | 0                            | 6                               | 47                  | 235               | 118                   | 1954                                         | 2355                 | 75.9%                |                     |                     |                                   |     |    |
| Apr18                  |       | 1643                | 629                    | 0                          | 1014                          | 61.7%       |                         |            |            | 0                            | 3                               | 20                  | 101               | 51                    | 839                                          | 1011                 | 61.5%                |                     |                     |                                   |     |    |
| May18                  |       | 1483                | 688                    | 0                          | 795                           | 53.6%       |                         |            |            | 0                            | 3                               | 16                  | 79                | 40                    | 657                                          | 792                  | 53.4%                |                     |                     |                                   |     |    |
| Jun18                  |       | 1969                | 600                    | 0                          | 1369                          | 69.5%       |                         |            |            | 0                            | 4                               | 27                  | 137               | 68                    | 1133                                         | 1365                 | 69.3%                |                     |                     |                                   |     |    |
| Jul18                  |       | 1959                | 824                    | 0                          | 1135                          | 57.9%       |                         |            |            | 0                            | 10                              | 23                  | 113               | 56                    | 934                                          | 1125                 | 57.4%                |                     |                     |                                   |     |    |
| Aug18                  |       | 2649                | 785                    | 0                          | 1864                          | 70.4%       |                         |            |            | 0                            | 11                              | 37                  | 185               | 93                    | 1538                                         | 1853                 | 69.9%                |                     |                     |                                   |     |    |
| Sep18                  |       | 471                 | 691                    | 0                          | -220                          | -46.7%      |                         |            |            | 0                            | 7                               | -5                  | -23               | -11                   | -188                                         | -227                 | -48.2%               |                     |                     |                                   |     |    |
| Oct18                  |       | 1241                | 875                    | 0                          | 366                           | 29.5%       |                         |            |            | 0                            | 8                               | 28                  | 7                 | 36                    | 18                                           | 297                  | 358                  | 29.8%               |                     |                                   |     |    |
| Nov18                  | 1214  | 1067                | 0                      | 147                        | 12.1%                         |             |                         |            | 0          | 8                            | 3                               | 14                  | 7                 | 115                   | 139                                          | 11.4%                |                      |                     |                     |                                   |     |    |
| Dec18                  | 1809  | 1243                | 0                      | 566                        | 31.3%                         |             |                         | 6546       | 36.4%      | 0                            | 10                              | 11                  | 56                | 28                    | 462                                          | 556                  | 30.8%                |                     |                     |                                   |     |    |
| Jan19                  | 1262  | 1128                | 0                      | 134                        | 10.6%                         |             |                         |            | 0          | 9                            | 3                               | 13                  | 6                 | 104                   | 125                                          | 9.9%                 |                      |                     |                     |                                   |     |    |
| Feb19                  | 1680  | 1084                | 0                      | 596                        | 35.5%                         |             |                         |            | 0          | 9                            | 12                              | 59                  | 29                | 487                   | 587                                          | 34.9%                |                      |                     |                     |                                   |     |    |
| Mar19                  | 1656  | 687                 | 0                      | 969                        | 58.5%                         |             |                         |            | 0          | 9                            | 19                              | 96                  | 48                | 797                   | 960                                          | 58.0%                |                      |                     |                     |                                   |     |    |
| Apr19                  | 1563  | 945                 | 0                      | 618                        | 39.5%                         |             |                         |            | 0          | 9                            | 12                              | 61                  | 30                | 505                   | 609                                          | 39.0%                |                      |                     |                     |                                   |     |    |
| May19                  | 922   | 1122                | 0                      | -200                       | -21.7%                        |             |                         |            | 0          | 8                            | -4                              | -21                 | -10               | -173                  | -208                                         | -22.5%               |                      |                     |                     |                                   |     |    |
| Jun19                  | 1578  | 1007                | 0                      | 571                        | 36.2%                         |             |                         |            | 0          | 9                            | 11                              | 56                  | 28                | 466                   | 562                                          | 35.6%                |                      |                     |                     |                                   |     |    |
| Jul19                  | 1169  | 932                 | 0                      | 237                        | 20.3%                         |             |                         |            | 0          | 8                            | 5                               | 23                  | 11                | 190                   | 229                                          | 19.6%                |                      |                     |                     |                                   |     |    |
| Aug19                  | 1014  | 887                 | 0                      | 127                        | 12.5%                         |             |                         |            | 0          | 8                            | 2                               | 12                  | 6                 | 99                    | 119                                          | 11.7%                |                      |                     |                     |                                   |     |    |
| Sep19                  | 1518  | 848                 | 0                      | 670                        | 44.1%                         |             |                         |            | 0          | 9                            | 13                              | 66                  | 33                | 549                   | 661                                          | 43.5%                |                      |                     |                     |                                   |     |    |
| Oct19                  | 878   | 889                 | 0                      | -11                        | -1.3%                         |             |                         |            | 0          | 8                            | 0                               | -2                  | -1                | -16                   | -19                                          | -2.1%                |                      |                     |                     |                                   |     |    |
| Nov19                  | 1536  | 1077                | 0                      | 459                        | 29.9%                         |             |                         |            | 0          | 9                            | 9                               | 45                  | 22                | 373                   | 450                                          | 29.3%                |                      |                     |                     |                                   |     |    |
| Dec19                  | 1799  | 1174                | 0                      | 625                        | 34.7%                         |             |                         |            | 0          | 10                           | 12                              | 62                  | 31                | 511                   | 615                                          | 34.2%                |                      |                     |                     |                                   |     |    |
| Jan20                  | 1306  | 1313                | 0                      | -7                         | -0.5%                         |             |                         | 4236       | 24.9%      | 0                            | 9                               | 0                   | -2                | -1                    | -13                                          | -16                  | -1.2%                |                     |                     |                                   |     |    |
| Feb20                  | 1997  | 1368                | 0                      | 629                        | 31.5%                         |             |                         |            | 0          | 10                           | 12                              | 62                  | 31                | 514                   | 619                                          | 31.0%                |                      |                     |                     |                                   |     |    |
| Mar20                  | 1714  | 1482                | 0                      | 232                        | 13.5%                         |             |                         |            | 0          | 9                            | 4                               | 22                  | 11                | 185                   | 223                                          | 13.0%                |                      |                     |                     |                                   |     |    |
| Apr20                  | 1614  | 969                 | 0                      | 645                        | 40.0%                         |             |                         |            | 0          | 9                            | 13                              | 64                  | 32                | 528                   | 636                                          | 39.4%                |                      |                     |                     |                                   |     |    |
| May20                  | 841   | 960                 | 0                      | -119                       | -14.1%                        |             |                         |            | 0          | 8                            | -3                              | -13                 | -6                | -105                  | -127                                         | -15.1%               |                      |                     |                     |                                   |     |    |
| Jun20                  | 1647  | 898                 | 0                      | 749                        | 45.5%                         |             |                         |            | 0          | 9                            | 15                              | 74                  | 37                | 614                   | 740                                          | 44.9%                |                      |                     |                     |                                   |     |    |
| Jul20                  | 861   | 930                 | 0                      | -69                        | -8.0%                         |             |                         |            | 0          | 8                            | -2                              | -8                  | -4                | -64                   | -77                                          | -8.9%                |                      |                     |                     |                                   |     |    |
| Aug20                  | 837   | 1410                | 0                      | -573                       | -68.5%                        |             |                         |            | 0          | 8                            | -12                             | -58                 | -29               | -482                  | -581                                         | -69.4%               |                      |                     |                     |                                   |     |    |
| Sep20                  | 1643  | 1006                | 0                      | 637                        | 38.8%                         |             |                         |            | 0          | 9                            | 13                              | 63                  | 31                | 521                   | 628                                          | 38.2%                |                      |                     |                     |                                   |     |    |
| Oct20                  | 812   | 1072                | 0                      | -260                       | -32.1%                        |             |                         |            | 0          | 8                            | -5                              | -27                 | -13               | -222                  | -268                                         | -33.0%               |                      |                     |                     |                                   |     |    |
| Nov20                  | 1704  | 1416                | 0                      | 288                        | 16.9%                         |             |                         |            | 0          | 9                            | 6                               | 28                  | 14                | 231                   | 278                                          | 16.3%                |                      |                     |                     |                                   |     |    |
| Dec20                  | 1599  | 1286                | 0                      | 313                        | 19.6%                         |             |                         |            | 0          | 9                            | 6                               | 30                  | 15                | 252                   | 303                                          | 19.0%                |                      |                     |                     |                                   |     |    |
| Jan21                  | 2121  | 1248                | 0                      | 873                        | 41.2%                         |             |                         | 3075       | 17.4%      | 0                            | 10                              | 17                  | 86                | 43                    | 716                                          | 863                  | 40.7%                |                     |                     |                                   |     |    |
| Feb21                  | 1628  | 1512                | 0                      | 116                        | 7.1%                          |             |                         |            | 0          | 9                            | 2                               | 11                  | 5                 | 89                    | 107                                          | 6.6%                 |                      |                     |                     |                                   |     |    |
| Mar21                  | 1644  | 1123                | 0                      | 521                        | 31.7%                         |             |                         |            | 0          | 9                            | 10                              | 51                  | 26                | 425                   | 512                                          | 31.1%                |                      |                     |                     |                                   |     |    |
| Apr21                  | 1607  | 1327                | 0                      | 280                        | 17.4%                         |             |                         |            | 0          | 9                            | 5                               | 27                  | 14                | 225                   | 271                                          | 16.9%                |                      |                     |                     |                                   |     |    |
| May21                  | 1595  | 1325                | 0                      | 270                        | 17.0%                         |             |                         |            | 0          | 9                            | 5                               | 26                  | 13                | 217                   | 261                                          | 16.4%                |                      |                     |                     |                                   |     |    |
| Jun21                  | 1611  | 932                 | 0                      | 679                        | 42.2%                         |             |                         |            | 0          | 9                            | 13                              | 67                  | 34                | 556                   | 670                                          | 41.6%                |                      |                     |                     |                                   |     |    |
| Jul21                  | 2657  | 1234                | 0                      | 1423                       | 53.6%                         |             |                         |            | 0          | 20                           | 28                              | 140                 | 70                | 1165                  | 1403                                         | 52.8%                |                      |                     |                     |                                   |     |    |
| Aug21                  | 1659  | 1025                | 0                      | 634                        | 38.2%                         |             |                         |            | 0          | 18                           | 12                              | 62                  | 31                | 511                   | 616                                          | 37.1%                |                      |                     |                     |                                   |     |    |
| Sep21                  | 1414  | 911                 | 0                      | 503                        | 35.6%                         |             |                         |            | 0          | 18                           | 10                              | 48                  | 24                | 403                   | 485                                          | 34.3%                |                      |                     |                     |                                   |     |    |
| Oct21                  | 1640  | 1179                | 0                      | 461                        | 28.1%                         |             |                         |            | 0          | 18                           | 9                               | 44                  | 22                | 368                   | 443                                          | 27.0%                |                      |                     |                     |                                   |     |    |
| Nov21                  | 2031  | 1129                | 0                      | 902                        | 44.4%                         |             |                         |            | 0          | 19                           | 8                               | 88                  | 44                | 683                   | 803                                          | 43.5%                |                      |                     |                     |                                   |     |    |
| Dec21                  | 1549  | 1290                | 0                      | 259                        | 16.7%                         |             |                         | 9214       | 38.4%      | 0                            | 18                              | 5                   | 24                | 12                    | 200                                          | 241                  | 15.6%                |                     |                     |                                   |     |    |
| Jan22                  | 1332  | 1538                | 0                      | -206                       | -15.5%                        |             |                         |            | 0          | 18                           | -2                              | -22                 | -11               | -186                  | -224                                         | -16.8%               |                      |                     |                     |                                   |     |    |
| Feb22                  | 2496  | 1417                | 0                      | 1079                       | 43.2%                         |             |                         |            | 0          | 20                           | 21                              | 106                 | 53                | 879                   | 1059                                         | 42.4%                |                      |                     |                     |                                   |     |    |
| Mar22                  | 1790  | 1590                | 0                      | 200                        | 11.2%                         |             |                         |            | 0          | 19                           | 4                               | 18                  | 9                 | 151                   | 181                                          | 10.1%                |                      |                     |                     |                                   |     |    |
| Apr22                  | 2566  | 1430                | 0                      | 1136                       | 44.3%                         |             |                         |            | 0          | 20                           | 22                              | 112                 | 56                | 926                   | 1116                                         | 43.5%                |                      |                     |                     |                                   |     |    |
| May22                  | 3003  | 1198                | 0                      | 1805                       | 60.1%                         |             |                         |            | 0          | 21                           | 36                              | 178                 | 89                | 1481                  | 1784                                         | 59.4%                |                      |                     |                     |                                   |     |    |
| Jun22                  | 1876  | 859                 | 0                      | 1017                       | 54.2%                         |             |                         |            | 0          | 19                           | 20                              | 100                 | 50                | 829                   | 998                                          | 53.2%                |                      |                     |                     |                                   |     |    |
| Jul22                  | 395   | 716                 | 0                      | -321                       | -45.1%                        |             |                         |            | 0          | 16                           | -7                              | -34                 | -17               | -280                  | -337                                         | -48.4%               |                      |                     |                     |                                   |     |    |
| Aug22                  | 1875  | 975                 | 0                      | 900                        | 48.0%                         |             |                         |            | 0          | 18                           | 18                              | 88                  | 44                | 731                   | 881                                          | 47.0%                |                      |                     |                     |                                   |     |    |
| Sep22                  | 1109  | 1007                | 0                      | 102                        | 9.2%                          |             |                         |            | 0          | 9                            | 2                               | 8                   | 4                 | 70                    | 84                                           | 7.6%                 |                      |                     |                     |                                   |     |    |
| Oct22                  | 1823  | 1239                | 0                      | 584                        | 32.0%                         |             |                         |            | 0          | 19                           | 11                              | 57                  | 28                | 469                   | 565                                          | 31.0%                |                      |                     |                     |                                   |     |    |
| Nov22                  | 2183  | 1472                | 0                      | 711                        | 32.6%                         |             |                         |            | 0          | 19                           | 14                              | 69                  | 35                | 574                   | 692                                          | 31.7%                |                      |                     |                     |                                   |     |    |
| Dec22                  | 1482  | 1517                | 0                      | -35                        | -2.3%                         |             |                         |            | 0          | 18                           | -1                              | -5                  | -3                | -44                   | -53                                          | -3.6%                |                      |                     |                     |                                   |     |    |
| Jan23                  | 22/23 | 2807                | 1677                   | 0                          | 1130                          | 40.2%       |                         |            | 1260       | 5.9%                         | 0                               | 21                  | 22                | 111                   | 55                                           | 921                  | 1109                 | 39.5%               |                     |                                   |     |    |
| Feb23                  |       | 1801                | 1706                   | 0                          | 95                            | 5.3%        |                         |            |            | 0                            | 19                              | 2                   | 8                 | 4                     | 64                                           | 77                   | 4.3%                 |                     |                     |                                   |     |    |
| Mar23                  |       | 548                 | 1899                   | 0                          | -1351                         | -246.6%     |                         |            |            | 0                            | 16                              | -27                 | -137              | -68                   | -1135                                        | -1367                | -249.5%              |                     |                     |                                   |     |    |
| Apr23                  |       | 2677                | 1392                   | 0                          | 1285                          | 48.0%       |                         |            |            | 0                            | 20                              | 25                  | 126               | 63                    | 1050                                         | 1265                 | 47.2%                |                     |                     |                                   |     |    |
| May23                  |       | 2647                | 1743                   | 0                          | 904                           | 34.2%       |                         |            |            | 0                            | 20                              | 18                  | 88                | 44                    | 733                                          | 884                  | 33.4%                |                     |                     |                                   |     |    |
| Jun23                  |       | 1853                | 4596                   | 0                          | -2743                         | -148.0%     |                         |            |            | 0                            | 19                              | -55                 | -278              | -138                  | -2292                                        | -2762                | -149.1%              |                     |                     |                                   |     |    |
| Jul23                  |       | 385                 | 1184                   | 0                          | -799                          | -109.9%     |                         |            |            | 0                            | 16                              | -40                 | -16               | -40                   | -468                                         | -495                 | -203.9%              |                     |                     |                                   |     |    |
| Aug23                  |       | 1752                | 1239                   | 0                          | 513                           | 29.3%       |                         |            |            | 0                            | 19                              | 49                  | 29                | 15                    | 295                                          | 28                   | 2.8%                 |                     |                     |                                   |     |    |
| Sep23                  |       | 1736                | 1518                   | 0                          | 218                           | 12.6%       |                         |            |            | 0                            | 18                              | 4                   | 20                | 10                    | 166                                          | 199                  | 11.5%                |                     |                     |                                   |     |    |
| Oct23                  |       | 1846                | 1061                   | 0                          | 785                           | 42.5%       |                         |            |            | 0                            | 19                              | 15                  | 77                | 38                    | 638                                          | 766                  | 41.1%                |                     |                     |                                   |     |    |
| Nov23                  |       | 2382                | 1348                   | 0                          | 1034                          | 43.4%       |                         |            |            | 0                            | 20                              | 24                  | 101               | 51                    | 842                                          | 1015                 | 42.6%                |                     |                     |                                   |     |    |
| Dec23                  |       | 1811                | 2592                   | 0                          | 781                           | 30.1%       |                         |            | 4822       | 20.5%                        | 0                               | 20                  | 15                | 76                    | 38                                           | 631                  | 761                  | 29.3%               |                     |                                   |     |    |
| Jan24                  |       | 2031                | 2033                   | 0                          | 328                           | 13.9%       |                         |            |            | 0                            | 20                              | 6                   | 34                | 15                    | 256                                          | 308                  | 13.8%                |                     |                     |                                   |     |    |
| Feb24                  |       | 2864                | 1691                   | 0                          | 963                           | 33.4%       |                         |            |            | 0                            | 21                              | 18                  | 92                | 47                    | 942                                          | 942                  | 32.7%                |                     |                     |                                   |     |    |
| Mar24                  |       | 1887                | 1544                   | 0                          | 943                           | 22.3%       |                         |            |            | 0                            | 19                              | 8                   | 42                | 21                    | 352                                          | 424                  | 21.3%                |                     |                     |                                   |     |    |
| Apr24                  |       | 2177                | 1733                   | 0                          | 444                           | 20.4%       |                         |            |            | 0                            | 19                              | 8                   | 42                | 21                    | 353                                          | 425                  | 19.5%                |                     |                     |                                   |     |    |
| May24                  | 1828  | 1426                | 0                      | 402                        | 22.0%                         |             |                         |            | 0          | 19                           | 8                               | 39                  | 19                | 318                   | 384                                          | 21.0%                |                      |                     |                     |                                   |     |    |
| Jun24                  | 1594  | 1594                | 0                      | -300                       | -18.8%                        |             |                         |            | 0          | 18                           | -6                              | -32                 | -15               | -318                  | -318                                         | -19.8%               |                      |                     |                     |                                   |     |    |
| Jul24                  | 1574  | 499                 | 0                      | 1075                       | 68.3%                         |             |                         |            | 0          | 18                           | 2                               | 106                 | 53                | 877                   | 1057                                         | 67.1%                |                      |                     |                     |                                   |     |    |
| Aug24                  | 1570  | 1070                | 0                      | 494                        | 31.5%                         |             |                         |            | 0          | 18                           | 10                              | 48                  | 24                | 395                   | 476                                          | 30.3%                |                      |                     |                     |                                   |     |    |
| Sep24                  | 1558  | 1087                | 0                      | 471                        | 30.2%                         |             |                         |            | 0          | 18                           | 9                               | 45                  | 23                | 376                   | 453                                          | 29.1%                |                      |                     |                     |                                   |     |    |
| Oct24                  | 1552  | 1539                | 0                      | 13                         | 0.8%                          |             |                         |            | 0          | 18                           | -1                              | -1                  | 0                 | -4                    | -5                                           | -0.3%                |                      |                     |                     |                                   |     |    |
| Nov24                  | 1862  | 1579                | 0                      | 220                        | 13.9%                         |             |                         |            | 0          | 19                           | 4                               | 20                  | 10                | 167                   | 201                                          | 10.8%                |                      |                     |                     |                                   |     |    |
| Dec24                  | 1979  | 1335                | 0                      | 244                        | 15.4%                         |             |                         | 4261       | 19.0%      | 0                            | 19                              | 5                   | 23                | 11                    | 187                                          | 226                  | 14.3%                |                     |                     |                                   |     |    |
| Jan25                  | 2169  | 2169                | 0                      | 33                         | 1.5%                          |             |                         |            | 0          | 19                           | 0                               | 1                   | 0                 | 12                    | 14                                           | 0.6%                 |                      |                     |                     |                                   |     |    |
| Feb25                  | 2342  | 2355                | 0                      | -13                        | -0.5%                         | </          |                         |            |            |                              |                                 |                     |                   |                       |                                              |                      |                      |                     |                     |                                   |     |    |

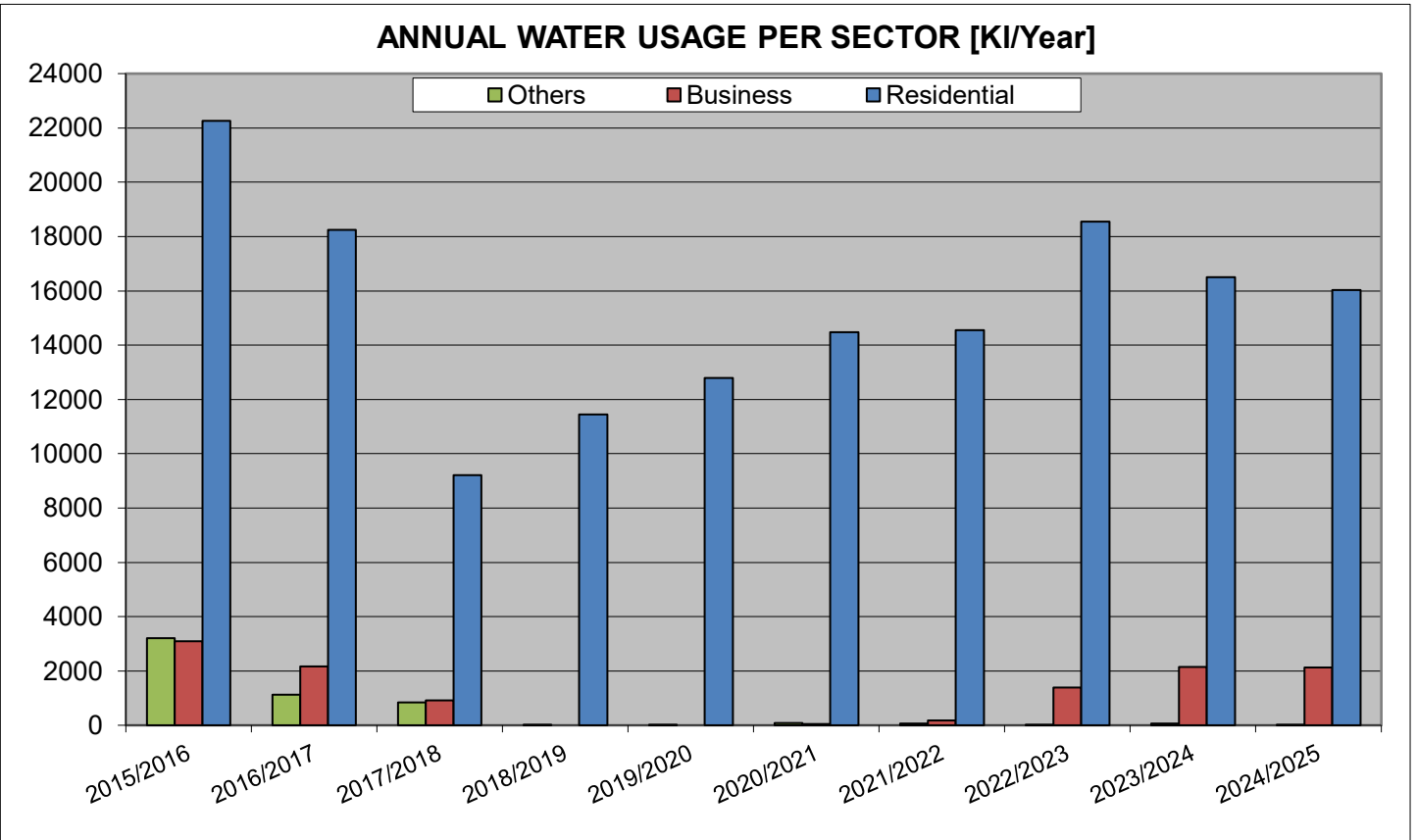
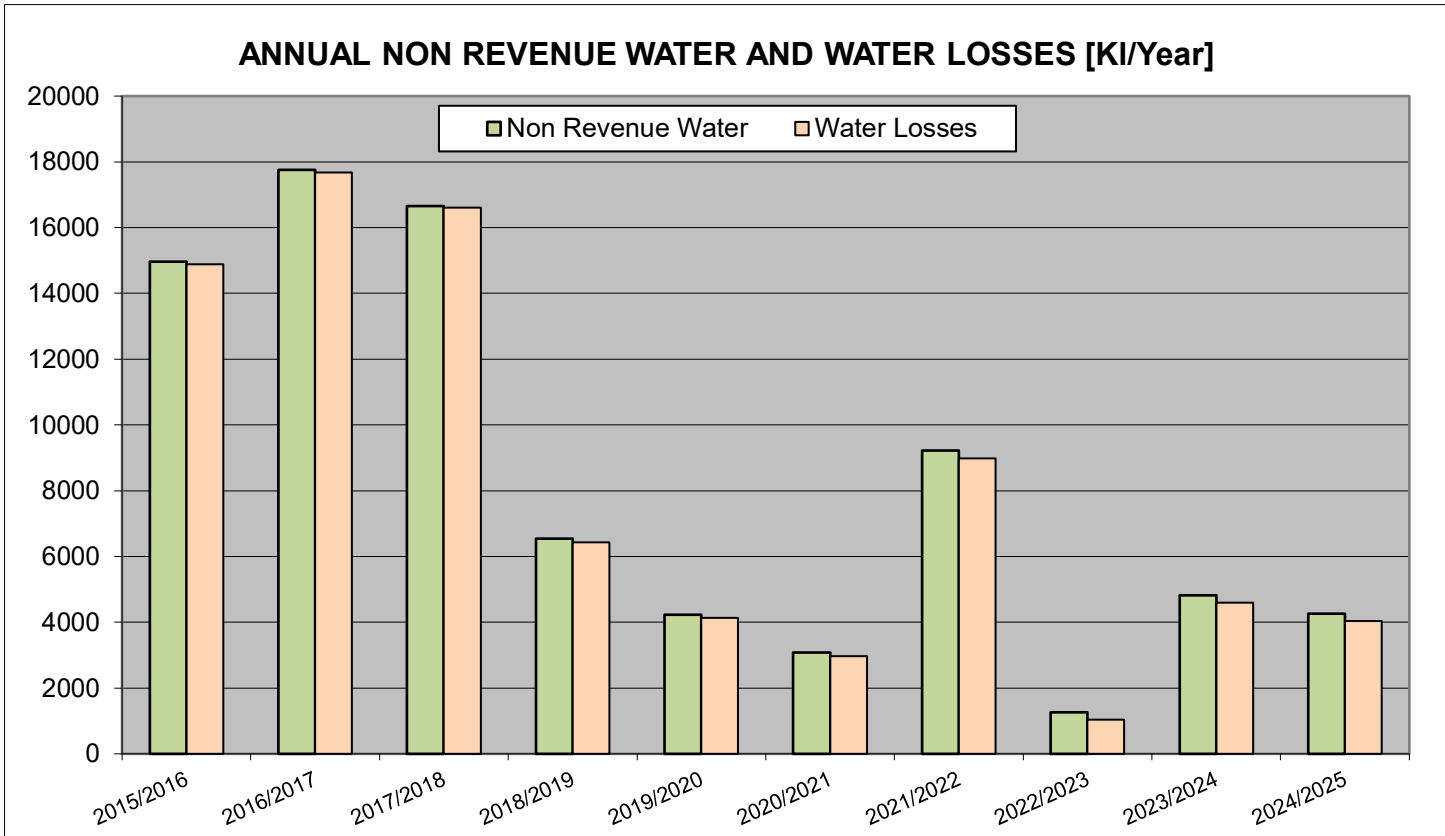
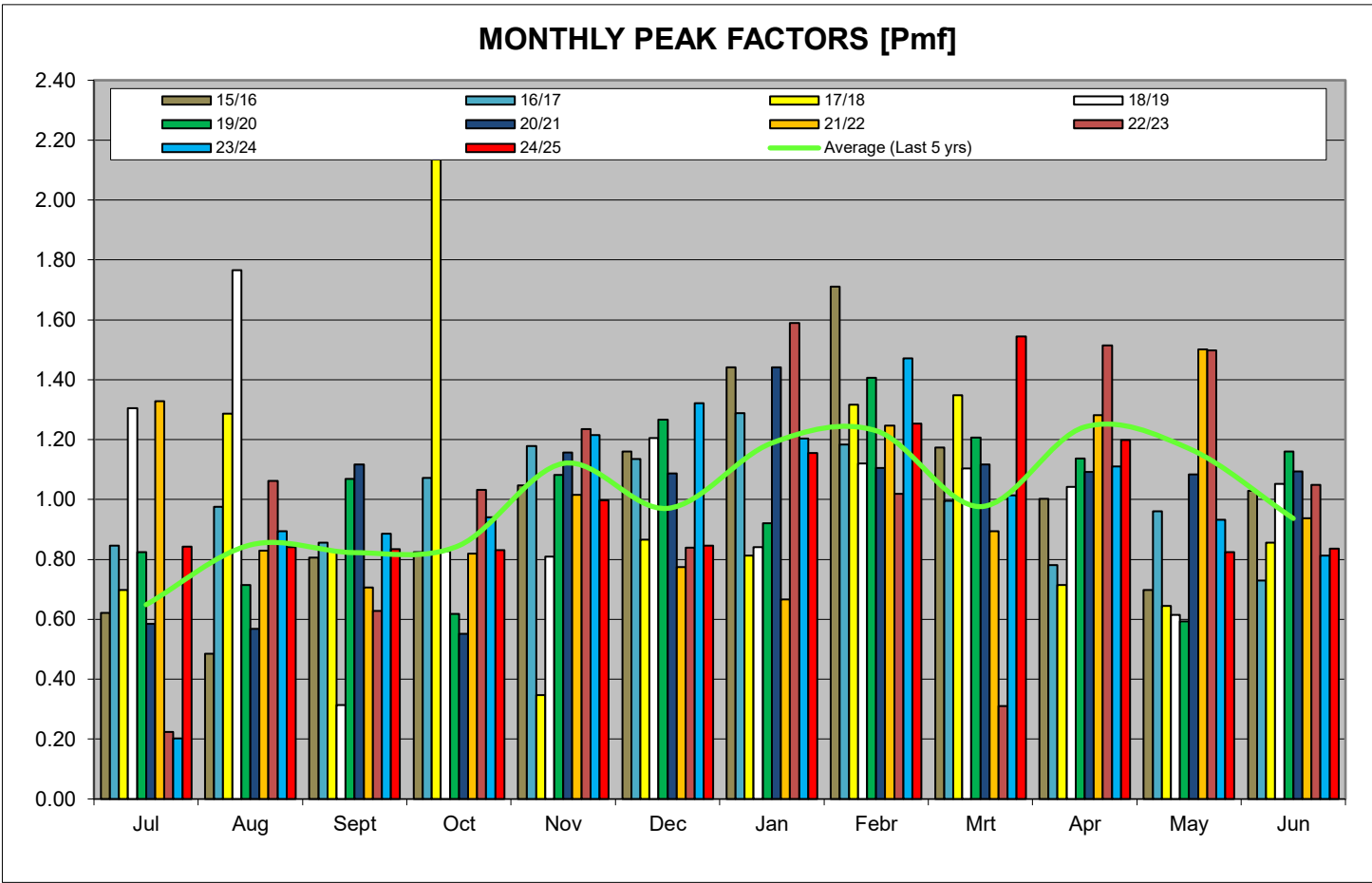


WATER BALANCE AND USAGE FOR THE PPC DISTRIBUTION SYSTEM

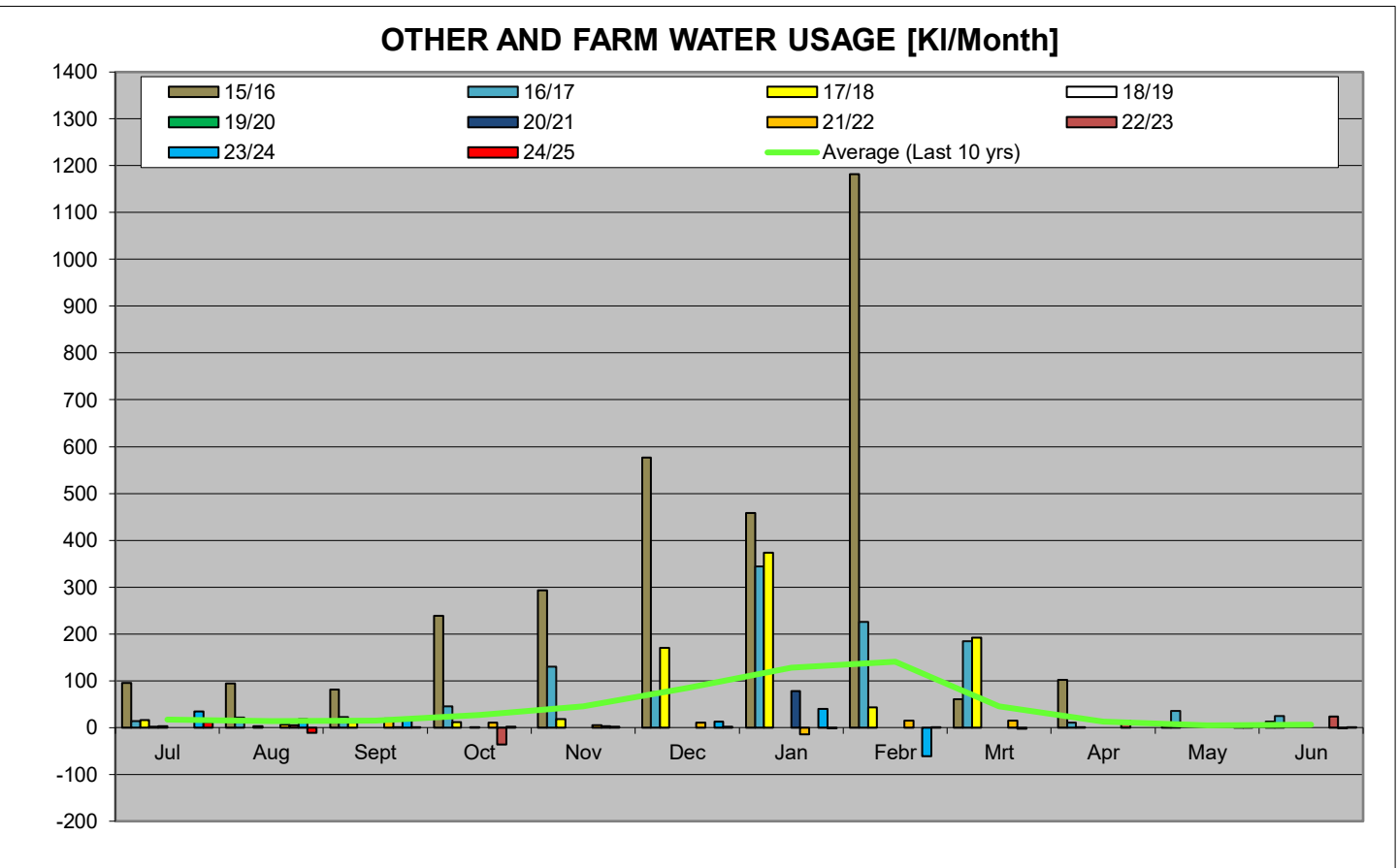
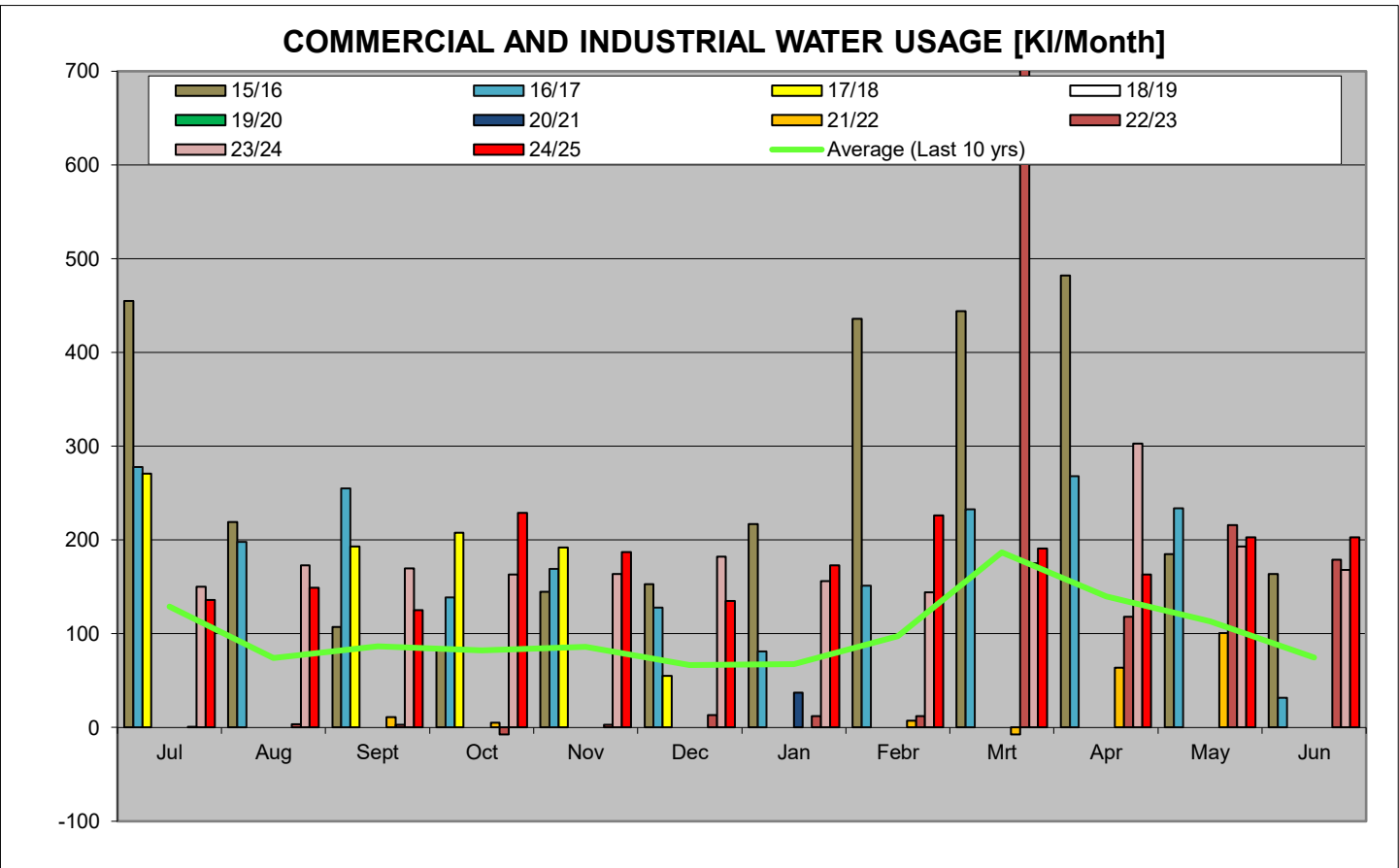
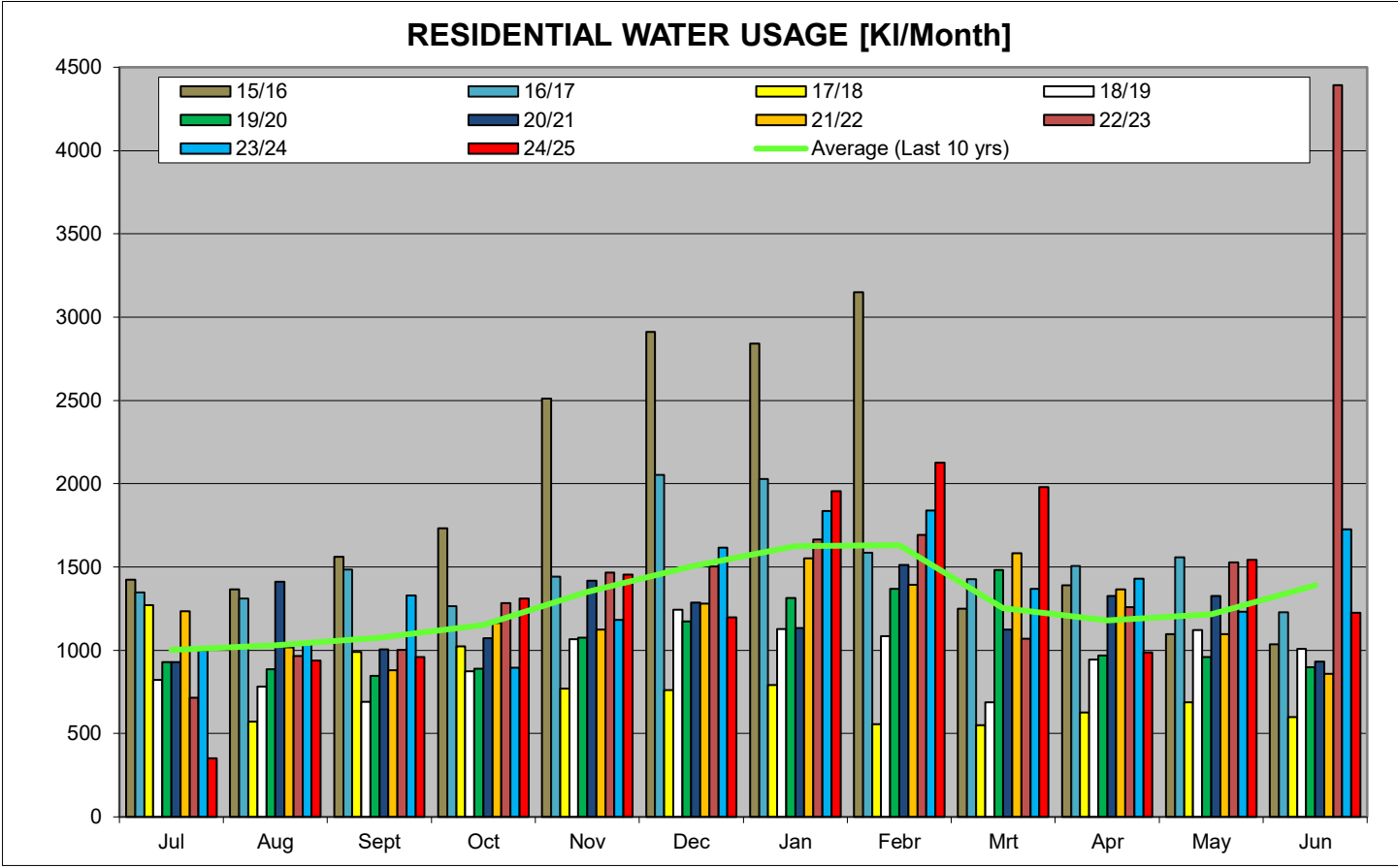




WATER BALANCE AND USAGE FOR THE PPC DISTRIBUTION SYSTEM



## WATER BALANCE AND USAGE FOR THE PPC DISTRIBUTION SYSTEM

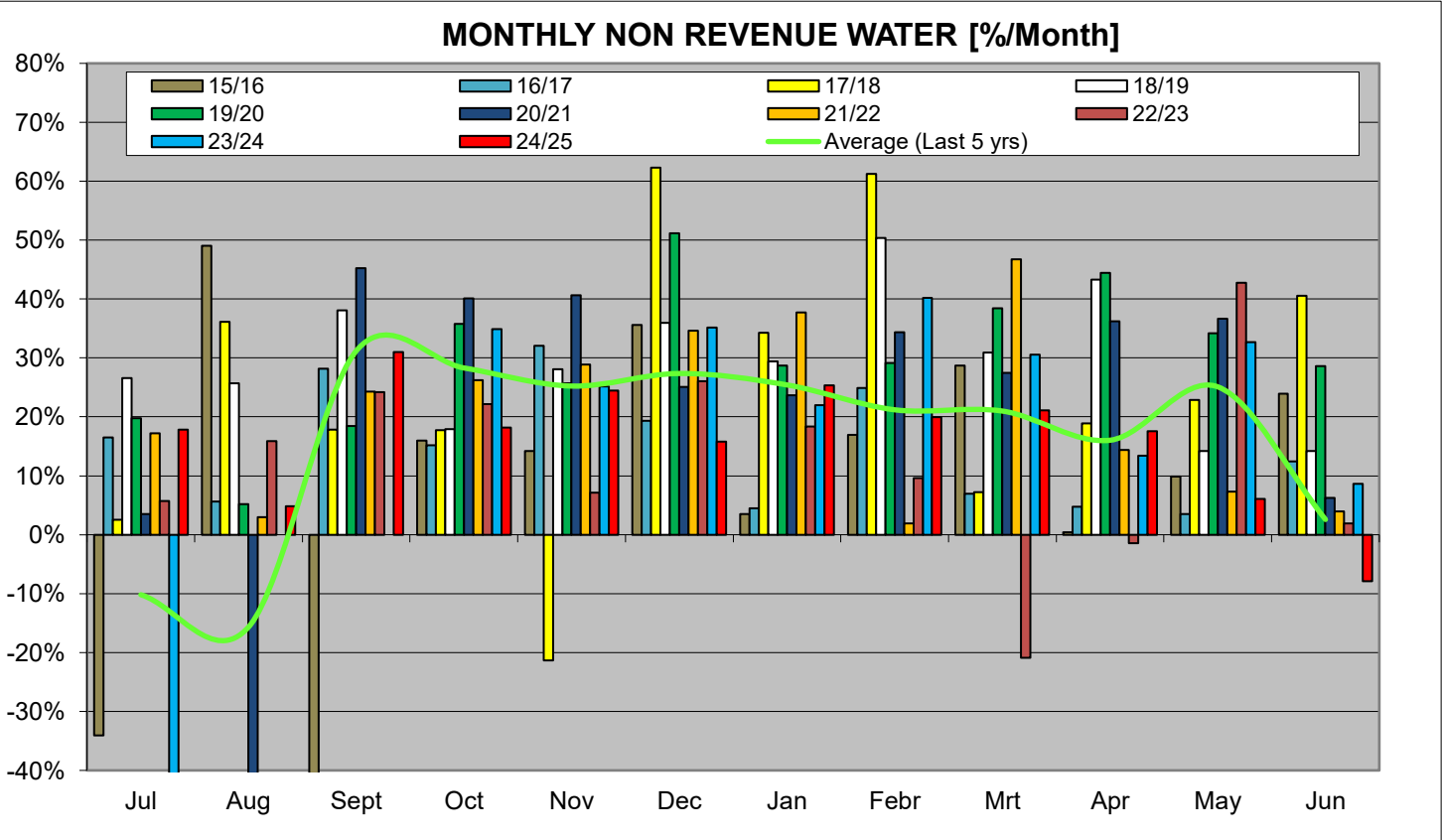
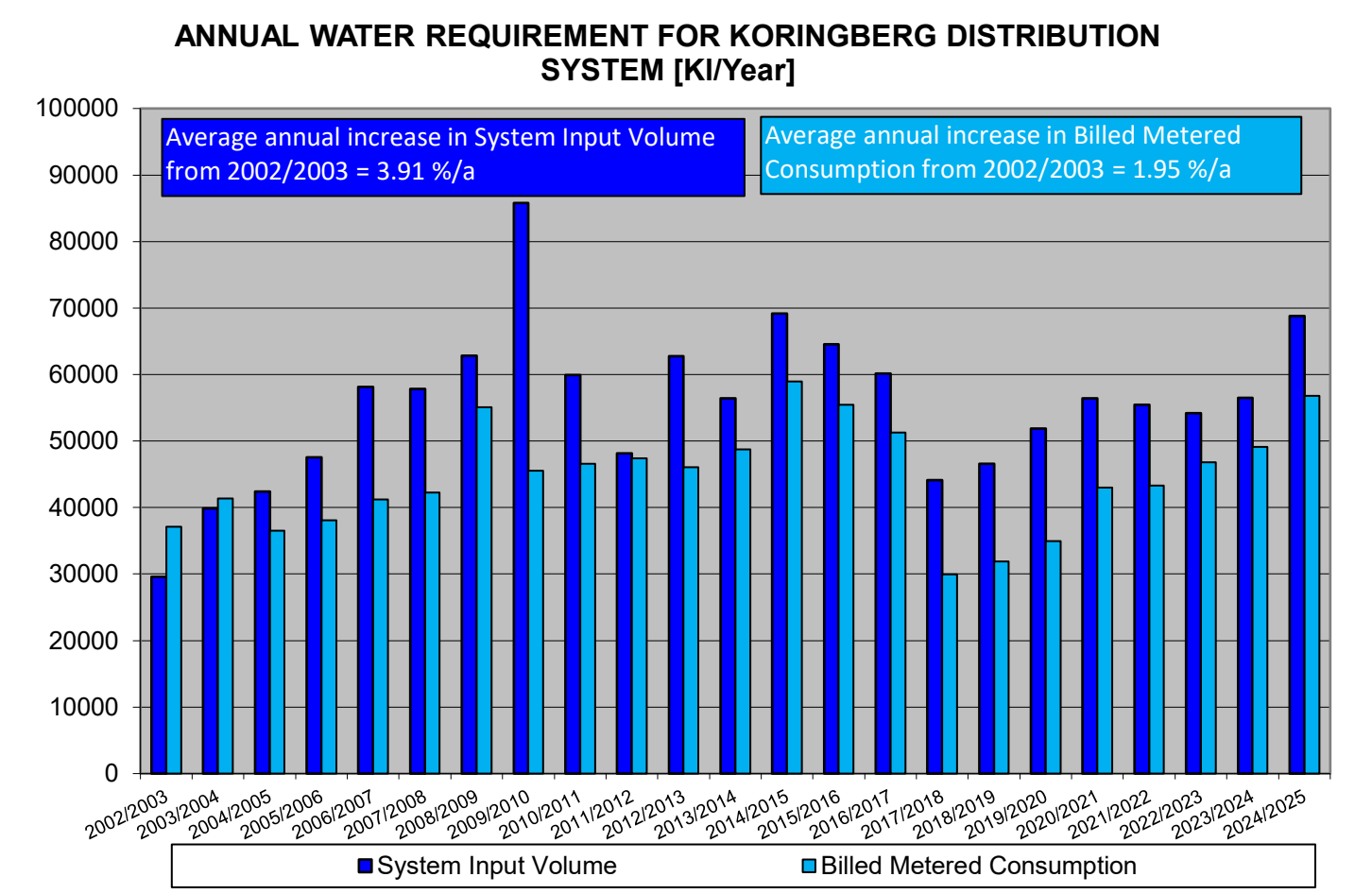
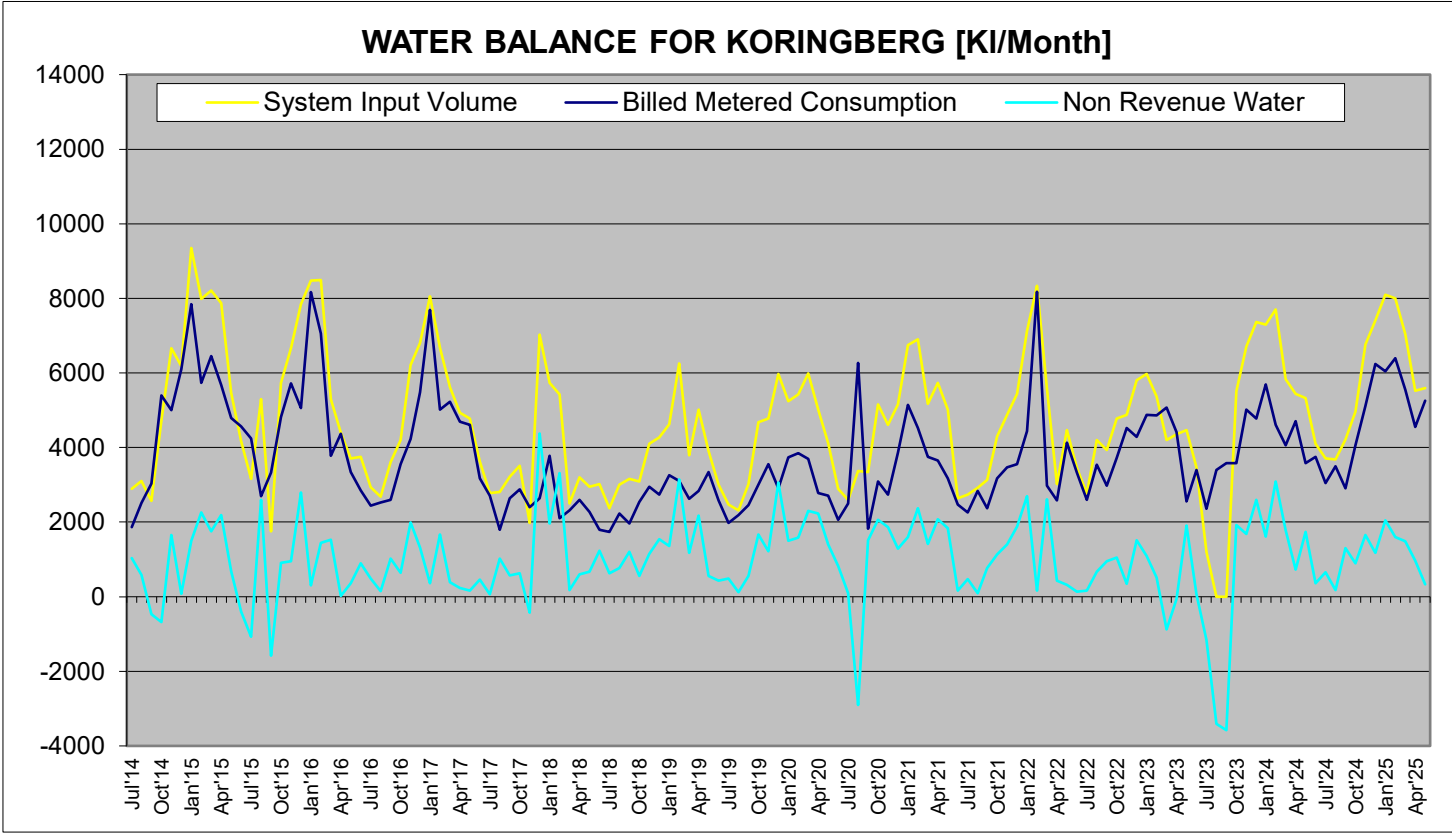


| SWARTLAND MUNICIPALITY |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
|------------------------|-------|------------------------|----------------------------|-------------------------------|---------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|-------------------------|-----------------------|----------------------------------|-----------------------------------|----------------------|----------------------|---------------------|---------------------|-------|
| Koringberg             |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
|                        |       | TREATED WATER SUPPLY   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Month                  | Year  | System Input Volume    |                            | Revenue Water                 |                     | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Non Revenue Water (NRW) |                       |                                  |                                   | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |       |
|                        |       | Treated Water from WTW | Billed Metered Consumption | Billed Un-metered Consumption | Apparent Losses     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
|                        |       |                        |                            |                               | Illegal Connections |             |             |            |            |                              |                                 | Inaccurate Meters       | Administrative Errors | Leaks, Reservoirs overflow, etc. |                                   |                      |                      |                     |                     |       |
|                        |       |                        |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  | Estimated Percentages (Variables) |                      |                      |                     |                     |       |
|                        |       |                        |                            |                               |                     |             |             |            |            |                              |                                 | 2%                      | 10%                   | 5%                               | 83%                               |                      |                      |                     |                     |       |
|                        |       | [m³]                   | [m³]                       | [m³]                          | [m³]                | [%]         | [m³]        | [%]        | [m³]       | [m³]                         | [m³]                            | [m³]                    | [m³]                  | [m³]                             | [m³]                              | [m³]                 | [%]                  | [m³]                | [%]                 |       |
| Jan01                  | 00/01 | 3357                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Feb01                  |       | 3937                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Mar01                  |       | 7468                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Apr01                  |       | 5051                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| May01                  |       | 2671                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Jun01                  | 01/02 | 2061                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Jul01                  |       | 1901                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Aug01                  |       | 1722                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Sep01                  |       | 995                    |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Oct01                  |       | 1925                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Nov01                  |       | 8172                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Dec01                  |       | 2118                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Jan02                  |       | 2487                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Feb02                  |       | 2124                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Mar02                  |       | 2243                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Apr02                  |       | 2118                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| May02                  |       | 2400                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Jun02                  |       | 1859                   |                            |                               |                     |             |             |            |            |                              |                                 |                         |                       |                                  |                                   |                      |                      |                     |                     |       |
| Jul02                  | 02/03 | 1961                   | 1137                       | 0                             | 824                 | 42.0%       |             |            |            | 0                            | 4                               | 16                      | 82                    | 41                               | 681                               | 820                  | 41.8%                |                     |                     |       |
| Aug02                  |       | 1895                   | 1196                       | 0                             | 699                 | 36.9%       |             |            |            | 0                            | 4                               | 14                      | 70                    | 35                               | 577                               | 695                  | 36.7%                |                     |                     |       |
| Sep02                  |       | 1905                   | 1477                       | 0                             | 428                 | 22.5%       |             |            |            | 0                            | 4                               | 8                       | 42                    | 21                               | 352                               | 424                  | 22.3%                |                     |                     |       |
| Oct02                  |       | 1913                   | 2146                       | 0                             | -233                | -12.2%      |             |            |            | 0                            | 4                               | -5                      | -24                   | -12                              | -197                              | -237                 | -12.4%               |                     |                     |       |
| Nov02                  |       | 3845                   | 2956                       | 0                             | 889                 | 23.1%       |             |            |            | 0                            | 8                               | 18                      | 88                    | 44                               | 731                               | 881                  | 22.9%                |                     |                     |       |
| Dec02                  | 4523  | 2269                   | 0                          | 2259                          | 49.9%               |             |             |            | 0          | 8                            | 45                              | 225                     | 112                   | 1867                             | 2260                              | 49.7%                |                      |                     |                     |       |
| Jan03                  | 3978  | 6180                   | 0                          | -2202                         | -55.4%              |             |             | -7511      | -25.4%     | 0                            | 8                               | -44                     | -221                  | -110                             | -1834                             | -2210                | -55.6%               | -7570               | -25.6%              |       |
| Feb03                  | 1659  | 4410                   | 0                          | -2751                         | -165.8%             |             |             |            |            | 0                            | 3                               | -55                     | -275                  | -138                             | -2286                             | -2754                | -166.0%              |                     |                     |       |
| Mar03                  | 3386  | 6071                   | 0                          | -2685                         | -79.3%              |             |             |            |            | 0                            | 7                               | -54                     | -269                  | -135                             | -2234                             | -2692                | -79.5%               |                     |                     |       |
| Apr03                  | 1257  | 3538                   | 0                          | -2281                         | -181.5%             |             |             |            |            | 0                            | 3                               | -46                     | -228                  | -114                             | -1895                             | -2284                | -181.7%              |                     |                     |       |
| May03                  | 2254  |                        | 0                          | -970                          | -43.0%              |             |             |            |            | 0                            | 5                               | -19                     | -97                   | -49                              | -809                              | -975                 | -43.2%               |                     |                     |       |
| Jun03                  | 1013  | 2501                   | 0                          | -1488                         | -146.9%             |             |             |            |            | 0                            | 2                               | -30                     | -149                  | -75                              | -1237                             | -1490                | -147.1%              |                     |                     |       |
| Jul03                  | 03/04 | 1995                   | 2579                       | 0                             | -584                | -29.3%      |             |            |            | 0                            | 4                               | -12                     | -59                   | -29                              | -488                              | -588                 | -29.5%               |                     |                     |       |
| Aug03                  |       | 1905                   | 2236                       | 0                             | -331                | -17.4%      |             |            |            | 0                            | 4                               | -7                      | -33                   | -17                              | -278                              | -335                 | -17.6%               |                     |                     |       |
| Sep03                  |       | 686                    | 1982                       | 0                             | -1296               | -188.9%     |             |            |            | 0                            | 1                               | -26                     | -130                  | -65                              | -1077                             | -1297                | -189.1%              |                     |                     |       |
| Oct03                  |       | 2195                   | 2585                       | 0                             | -390                | -17.8%      |             |            |            | 0                            | 4                               | -8                      | -39                   | -20                              | -327                              | -394                 | -18.0%               |                     |                     |       |
| Nov03                  |       | 4042                   | 3903                       | 0                             | 139                 | 3.4%        |             |            |            | 0                            | 8                               | 3                       | 13                    | 7                                | 109                               | 131                  | 3.2%                 |                     |                     |       |
| Dec03                  |       | 6541                   | 4122                       | 0                             | 2419                | 37.0%       |             |            |            | 0                            | 13                              | 48                      | 241                   | 120                              | 1997                              | 2406                 | 36.8%                | -1532               | -3.8%               |       |
| Jan04                  |       | 4929                   | 5500                       | 0                             | -572                | -11.6%      |             |            | -1453      | -3.6%                        | 0                               | 10                      | -12                   | -58                              | -29                               | -483                 | -581                 | -11.8%              |                     |       |
| Feb04                  |       | 3028                   |                            | 0                             | -1474               | -48.7%      |             |            |            |                              | 0                               | 6                       | -30                   | -148                             | -74                               | -1228                | -1480                | -48.9%              |                     |       |
| Mar04                  |       | 3972                   | 3998                       | 0                             | -16                 | -0.4%       |             |            |            |                              | 0                               | 8                       | 0                     | -2                               | -1                                | -20                  | -24                  | -0.6%               |                     |       |
| Apr04                  |       | 3972                   | 2947                       | 0                             | 1025                | 25.8%       |             |            |            |                              | 0                               | 8                       | 20                    | 102                              | 51                                | 844                  | 1017                 | 25.6%               |                     |       |
| May04                  |       | 4132                   | 4247                       | 0                             | -115                | -2.8%       |             |            |            |                              | 0                               | 8                       | -2                    | -12                              | -6                                | -102                 | -123                 | -3.0%               |                     |       |
| Jun04                  |       | 2481                   | 2739                       | 0                             | -258                | -10.4%      |             |            |            |                              | 0                               | 5                       | -5                    | -26                              | -13                               | -218                 | -263                 | -10.6%              |                     |       |
| Jul04                  | 04/05 | 4728                   | 2720                       | 0                             | 2720                | 57.5%       |             |            |            | 0                            | 9                               | -54                     | 271                   | 136                              | 2259                              | 2714                 | 57.3%                |                     |                     |       |
| Aug04                  |       | 2553                   | 2112                       | 0                             | 841                 | 28.5%       |             |            |            |                              | 0                               | 6                       | 17                    | 84                               | 42                                | 693                  | 835                  | 28.3%               |                     |       |
| Sep04                  |       | 1091                   | 2500                       | 0                             | -1409               | -129.1%     |             |            |            |                              | 0                               | 2                       | -28                   | -141                             | -71                               | -1171                | -1411                | -129.3%             |                     |       |
| Oct04                  |       | 3589                   | 2956                       | 0                             | 633                 | 17.6%       |             |            |            |                              | 0                               | 7                       | 13                    | 63                               | 31                                | 519                  | 626                  | 17.4%               |                     |       |
| Nov04                  |       | 2462                   | 4093                       | 0                             | -1631               | -66.2%      |             |            |            |                              | 0                               | 5                       | -33                   | -164                             | -82                               | -1358                | -1636                | -66.4%              |                     |       |
| Dec04                  |       | 3695                   | 3699                       | 0                             | 156                 | 4.2%        |             |            |            |                              | 0                               | 7                       | 156                   | 3                                | 7                                 | 123                  | 149                  | 4.0%                |                     |       |
| Jan05                  |       | 5879                   | 4451                       | 0                             | 1428                | 24.3%       |             |            |            |                              | 0                               | 12                      | 28                    | 142                              | 71                                | 1175                 | 1416                 | 24.1%               | 5811                | 13.7% |
| Feb05                  |       | 7660                   | 4745                       | 0                             | 2915                | 38.1%       |             |            |            |                              | 0                               | 15                      | 58                    | 290                              | 145                               | 2407                 | 2900                 | 37.9%               |                     |       |
| Mar05                  |       | 3046                   | 3488                       | 0                             | -442                | -14.5%      |             |            |            |                              | 0                               | 6                       | -9                    | -45                              | -22                               | -372                 | -448                 | -14.7%              |                     |       |
| Apr05                  |       | 2890                   |                            | 0                             | 0                   | 0.0%        |             |            |            |                              | 0                               | 9                       | 0                     | 0                                | 0                                 | 3                    | 0                    | 0.1%                |                     |       |
| May05                  |       | 2365                   | 1992                       | 0                             | 373                 | 15.6%       |             |            |            |                              | 0                               | 5                       | 7                     | 37                               | 18                                | 306                  | 368                  | 15.6%               |                     |       |
| Jun05                  |       | 2030                   | 1727                       | 0                             | 303                 | 14.9%       |             |            |            |                              | 0                               | 4                       | 6                     | 30                               | 15                                | 248                  | 299                  | 14.7%               |                     |       |
| Jul05                  |       | 453                    | 1858                       | 0                             | -1405               | -310.2%     |             |            |            |                              | 0                               | 1                       | -28                   | -141                             | -70                               | -1167                | -1406                | -310.4%             |                     |       |
| Aug05                  | 05/06 | 583                    | 2086                       | 0                             | -1483               | -254.4%     |             |            |            | 0                            | 1                               | -30                     | -148                  | -74                              | -1232                             | -1484                | -254.6%              |                     |                     |       |
| Sep05                  |       | 1025                   | 2019                       | 0                             | -994                | -97.0%      |             |            |            |                              | 0                               | 2                       | -20                   | -100                             | -50                               | -427                 | -996                 | -97.2%              |                     |       |
| Oct05                  |       | 3708                   | 3103                       | 0                             | 605                 | 16.3%       |             |            |            |                              | 0                               | 7                       | 12                    | 60                               | 30                                | 496                  | 597                  | 16.1%               |                     |       |
| Nov05                  |       | 5622                   | 3254                       | 0                             | 2368                | 42.1%       |             |            |            |                              | 0                               | 11                      | 47                    | 236                              | 118                               | 1956                 | 2357                 | 41.9%               |                     |       |
| Dec05                  |       | 5634                   | 4355                       | 0                             | 1279                | 22.7%       |             |            |            |                              | 0                               | 11                      | 25                    | 127                              | 63                                | 1052                 | 1268                 | 22.5%               |                     |       |
| Jan06                  |       | 9069                   | 5205                       | 0                             | 3864                | 42.6%       |             |            |            |                              | 0                               | 18                      | 77                    | 385                              | 192                               | 3192                 | 3846                 | 42.4%               | 9351                | 19.7% |
| Feb06                  |       | 6105                   | 3598                       | 0                             | 2507                | 41.1%       |             |            |            |                              | 0                               | 12                      | 50                    | 249                              | 125                               | 2071                 | 2495                 | 41.0%               |                     |       |
| Mar06                  |       | 4811                   | 3982                       | 0                             | 849                 | 17.6%       |             |            |            |                              | 0                               | 10                      | 17                    | 84                               | 42                                | 697                  | 839                  | 17.4%               |                     |       |
| Apr06                  |       | 770                    | 4634                       | 0                             | -3864               | -501.8%     |             |            |            |                              | 0                               | 2                       | -77                   | -387                             | -193                              | -3208                | -3866                | -502.0%             |                     |       |
| May06                  |       | 2365                   | 2332                       | 0                             | 33                  | 1.4%        |             |            |            |                              | 0                               | 5                       | 1                     | 3                                | 1                                 | 23                   | 28                   | 1.2%                |                     |       |
| Jun06                  |       | 7388                   | 1711                       | 0                             | 5687                | 76.9%       |             |            |            |                              | 0                               | 15                      | 113                   | 567                              | 284                               | 4708                 | 5672                 | 76.7%               |                     |       |
| Jul06                  |       | 1648                   | 1919                       | 0                             | -271                | -16.4%      |             |            |            |                              | 0                               | 5                       | -15                   | -27                              | -14                               | -228                 | -274                 | -16.6%              |                     |       |
| Aug06                  | 06/07 | 2428                   | 1853                       | 0                             | 575                 | 23.7%       |             |            |            |                              | 0                               | 5                       | 11                    | 57                               | 29                                | 473                  | 570                  | 23.5%               |                     |       |
| Sep06                  |       | 2179                   | 2331                       | 0                             | -152                | -7.0%       |             |            |            |                              | 0                               | 4                       | -3                    | -16                              | -8                                | -130                 | -156                 | -7.2%               |                     |       |
| Oct06                  |       | 4524                   | 3005                       | 0                             | 1519                | 33.6%       |             |            |            |                              | 0                               | 9                       | 30                    | 151                              | 75                                | 1253                 | 1510                 | 33.4%               |                     |       |
| Nov06                  |       | 4314                   | 3638                       | 0                             | 676                 | 15.7%       |             |            |            |                              | 0                               | 9                       | 13                    | 67                               | 33                                | 556                  | 669</                |                     |                     |       |

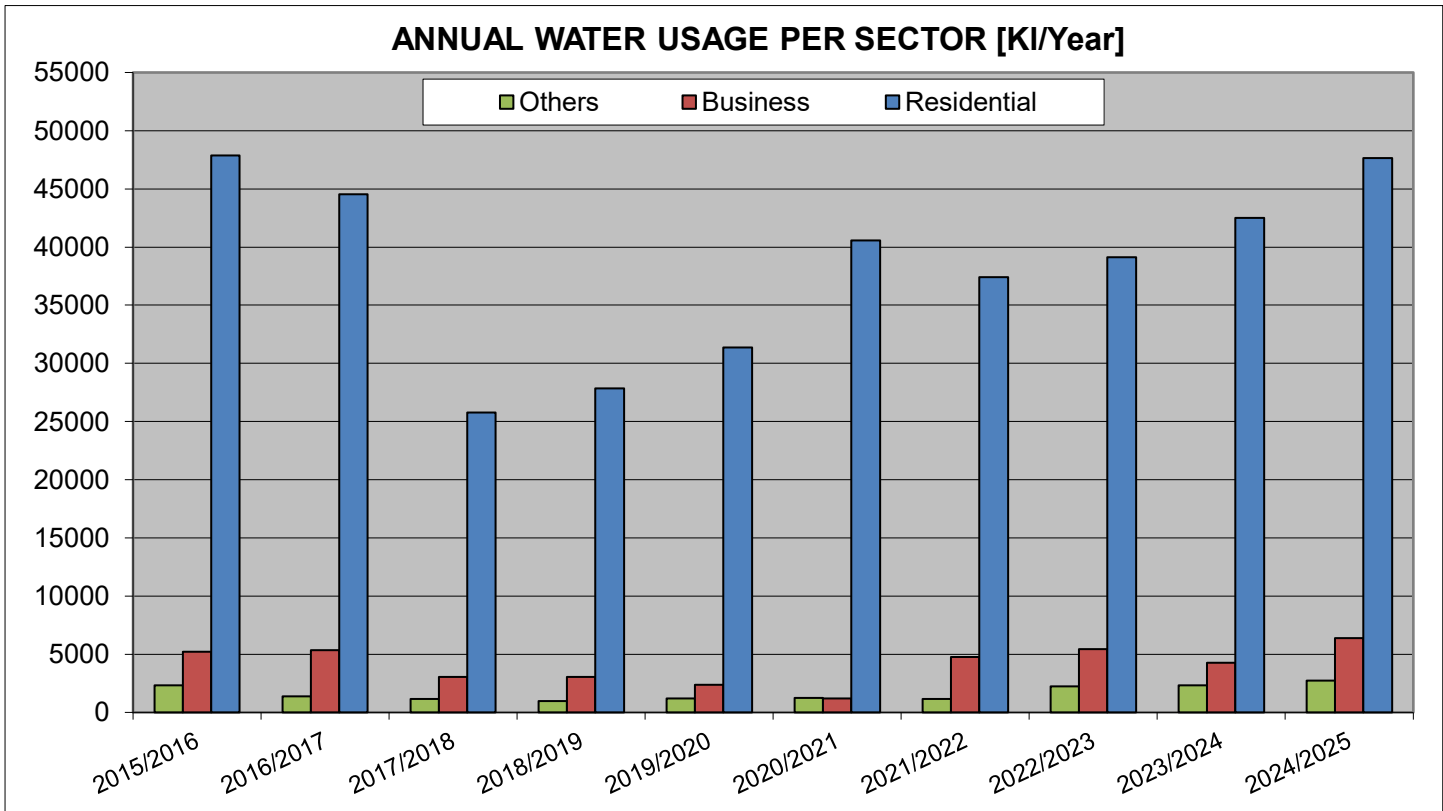
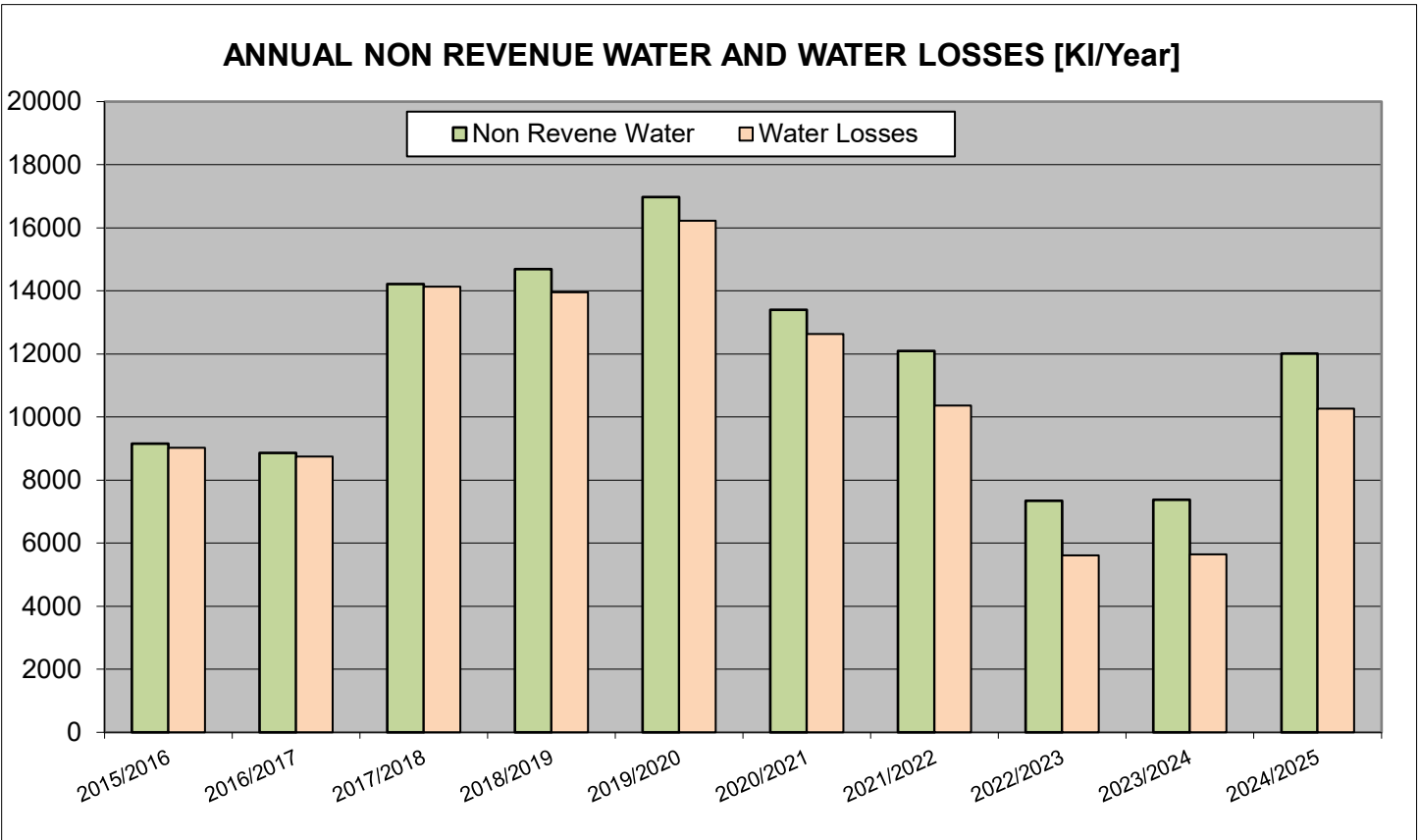
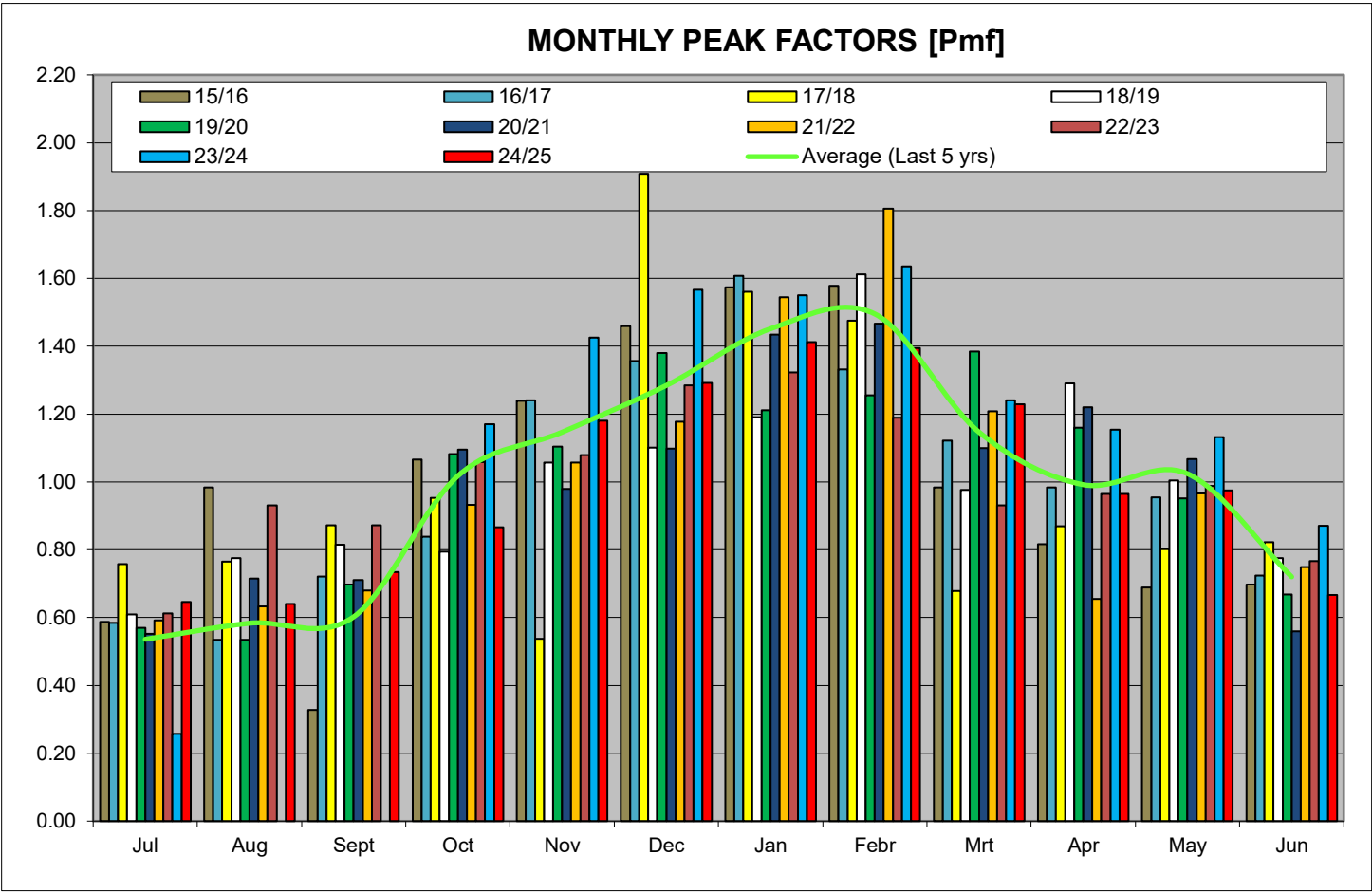


| SWARTLAND MUNICIPALITY |       |                     |                        |                            |       |             |             |            |            |                              |                                 |                               |                     |                   |                       |                      |                      |                     |                     |             |                                  |                                   |     |    |     |
|------------------------|-------|---------------------|------------------------|----------------------------|-------|-------------|-------------|------------|------------|------------------------------|---------------------------------|-------------------------------|---------------------|-------------------|-----------------------|----------------------|----------------------|---------------------|---------------------|-------------|----------------------------------|-----------------------------------|-----|----|-----|
| Koringberg             |       |                     |                        |                            |       |             |             |            |            |                              |                                 |                               |                     |                   |                       |                      |                      |                     |                     |             |                                  |                                   |     |    |     |
| TREATED WATER SUPPLY   |       |                     |                        |                            |       |             |             |            |            |                              |                                 |                               |                     |                   |                       |                      |                      |                     |                     |             |                                  |                                   |     |    |     |
| Month                  | Year  | System Input Volume | Revenue Water          |                            |       | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Non Revenue Water (NRW)       |                     |                   |                       | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |             |                                  |                                   |     |    |     |
|                        |       |                     | Treated Water from WTW | Billed Metered Consumption |       |             |             |            |            |                              |                                 | Billed Un-metered Consumption | Apparent Losses     |                   |                       |                      |                      |                     |                     | Real Losses |                                  |                                   |     |    |     |
|                        |       |                     |                        |                            |       |             |             |            |            |                              |                                 |                               | Illegal Connections | Inaccurate Meters | Administrative Errors |                      |                      |                     |                     |             | Leaks, Reservoirs overflow, etc. |                                   |     |    |     |
|                        |       |                     |                        |                            |       |             |             |            |            |                              |                                 |                               |                     |                   |                       |                      |                      |                     |                     |             |                                  | Estimated Percentages (Variables) |     |    |     |
|                        |       |                     |                        |                            |       |             |             |            |            |                              |                                 |                               |                     |                   |                       |                      |                      |                     |                     |             |                                  | 2%                                | 10% | 5% | 83% |
| [m³]                   | [m³]  | [m³]                | [m³]                   | [%]                        | [m³]  | [%]         | [m³]        | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                          | [m³]                | [%]               | [m³]                  | [%]                  |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'16                 | 16/17 | 2930                | 2447                   | 0                          | 483   | 16.5%       | 8863        | 14.7%      | 0          | 6                            | 10                              | 48                            | 24                  | 396               | 477                   | 18.3%                | 8743                 | 14.5%               |                     |             |                                  |                                   |     |    |     |
| Aug'16                 |       | 2680                | 2529                   | 0                          | 151   | 5.6%        |             |            | 0          | 5                            | 3                               | 15                            | 7                   | 121               | 146                   | 5.4%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'16                 |       | 3609                | 2592                   | 0                          | 1017  | 28.2%       |             |            | 0          | 7                            | 20                              | 101                           | 50                  | 838               | 1010                  | 28.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'16                 |       | 4199                | 3560                   | 0                          | 639   | 15.2%       |             |            | 0          | 8                            | 13                              | 63                            | 32                  | 523               | 631                   | 15.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'16                 |       | 6219                | 4226                   | 0                          | 1993  | 32.0%       |             |            | 0          | 12                           | 40                              | 198                           | 99                  | 1644              | 1981                  | 31.8%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'16                 |       | 6800                | 5485                   | 0                          | 1315  | 19.3%       |             |            | 0          | 14                           | 26                              | 130                           | 65                  | 1080              | 1301                  | 19.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'17                 |       | 8053                | 7695                   | 0                          | 358   | 4.4%        |             |            | 0          | 16                           | 7                               | 34                            | 17                  | 284               | 342                   | 4.2%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'17                 |       | 6675                | 5012                   | 0                          | 1663  | 24.9%       |             |            | 0          | 13                           | 33                              | 165                           | 82                  | 1369              | 1650                  | 24.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'17                  |       | 5623                | 5233                   | 0                          | 390   | 6.9%        |             |            | 0          | 11                           | 8                               | 38                            | 19                  | 314               | 379                   | 6.7%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'17                 |       | 4929                | 4695                   | 0                          | 234   | 4.7%        |             |            | 0          | 10                           | 4                               | 22                            | 11                  | 186               | 224                   | 4.5%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'17                 |       | 4781                | 4614                   | 0                          | 167   | 3.5%        |             |            | 0          | 10                           | 3                               | 16                            | 8                   | 131               | 157                   | 3.3%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'17                 |       | 3630                | 3177                   | 0                          | 453   | 12.5%       |             |            | 0          | 7                            | 9                               | 45                            | 22                  | 370               | 446                   | 12.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'17                 | 17/18 | 2786                | 2715                   | 0                          | 71    | 2.5%        | 14213       | 32.2%      | 0          | 6                            | 1                               | 7                             | 3                   | 54                | 65                    | 2.3%                 | 14125                | 32.0%               |                     |             |                                  |                                   |     |    |     |
| Aug'17                 |       | 2814                | 1798                   | 0                          | 1016  | 36.1%       |             |            | 0          | 6                            | 20                              | 101                           | 51                  | 839               | 1010                  | 35.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'17                 |       | 3211                | 2638                   | 0                          | 573   | 17.8%       |             |            | 0          | 6                            | 11                              | 57                            | 28                  | 470               | 567                   | 17.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'17                 |       | 3508                | 2884                   | 0                          | 624   | 17.8%       |             |            | 0          | 7                            | 12                              | 62                            | 31                  | 512               | 617                   | 17.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'17                 |       | 1977                | 2399                   | 0                          | -422  | -21.3%      |             |            | 0          | 4                            | -9                              | -43                           | -21                 | -354              | -426                  | -21.5%               |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'17                 |       | 7024                | 2647                   | 0                          | 4377  | 62.3%       |             |            | 0          | 14                           | 87                              | 436                           | 218                 | 3621              | 4363                  | 62.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'18                 |       | 5741                | 3773                   | 0                          | 1968  | 34.3%       |             |            | 0          | 11                           | 39                              | 196                           | 98                  | 1624              | 1957                  | 34.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'18                 |       | 5427                | 2105                   | 0                          | 3322  | 61.2%       |             |            | 0          | 11                           | 66                              | 331                           | 166                 | 2748              | 3311                  | 61.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'18                  |       | 2486                | 2316                   | 0                          | 180   | 7.2%        |             |            | 0          | 5                            | 14                              | 18                            | 9                   | 145               | 175                   | 7.0%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'18                 |       | 3199                | 2596                   | 0                          | 603   | 18.8%       |             |            | 0          | 6                            | 12                              | 60                            | 30                  | 495               | 597                   | 18.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'18                 |       | 2849                | 2275                   | 0                          | 674   | 22.9%       |             |            | 0          | 6                            | 13                              | 67                            | 33                  | 555               | 668                   | 22.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'18                 |       | 3025                | 1798                   | 0                          | 1227  | 40.6%       |             |            | 0          | 6                            | 24                              | 122                           | 61                  | 1013              | 1221                  | 40.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'18                 | 18/19 | 2368                | 1738                   | 0                          | 630   | 26.6%       | 14694       | 31.5%      | 0          | 59                           | 11                              | 57                            | 29                  | 474               | 571                   | 24.1%                | 13953                | 29.9%               |                     |             |                                  |                                   |     |    |     |
| Aug'18                 |       | 3012                | 2237                   | 0                          | 775   | 25.7%       |             |            | 0          | 60                           | 14                              | 71                            | 36                  | 593               | 715                   | 23.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'18                 |       | 3165                | 1960                   | 0                          | 1205  | 38.1%       |             |            | 0          | 60                           | 23                              | 114                           | 57                  | 950               | 1145                  | 36.2%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'18                 |       | 3088                | 2535                   | 0                          | 553   | 17.9%       |             |            | 0          | 60                           | 10                              | 49                            | 25                  | 409               | 493                   | 16.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'18                 |       | 4104                | 2950                   | 0                          | 1154  | 28.1%       |             |            | 0          | 62                           | 22                              | 109                           | 55                  | 906               | 1092                  | 26.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'18                 |       | 4274                | 2737                   | 0                          | 1537  | 36.0%       |             |            | 0          | 63                           | 29                              | 147                           | 74                  | 1224              | 1474                  | 34.5%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'19                 |       | 4624                | 3265                   | 0                          | 1359  | 29.4%       |             |            | 0          | 63                           | 26                              | 130                           | 65                  | 1075              | 1296                  | 28.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'19                 |       | 6259                | 3106                   | 0                          | 3153  | 50.4%       |             |            | 0          | 62                           | 62                              | 309                           | 154                 | 2562              | 3086                  | 49.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'19                  |       | 3793                | 2619                   | 0                          | 1174  | 31.0%       |             |            | 0          | 67                           | 22                              | 111                           | 56                  | 923               | 1112                  | 29.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'19                 |       | 5013                | 2842                   | 0                          | 2171  | 43.3%       |             |            | 0          | 64                           | 42                              | 211                           | 105                 | 1749              | 2107                  | 42.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'19                 |       | 3899                | 3344                   | 0                          | 555   | 14.2%       |             |            | 0          | 62                           | 10                              | 49                            | 25                  | 409               | 493                   | 12.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'19                 |       | 3010                | 2582                   | 0                          | 428   | 14.2%       |             |            | 0          | 60                           | 7                               | 37                            | 18                  | 305               | 368                   | 12.2%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'19                 | 19/20 | 2467                | 1980                   | 0                          | 487   | 19.7%       | 16976       | 32.7%      | 0          | 59                           | 9                               | 43                            | 21                  | 355               | 428                   | 17.4%                | 16224                | 31.3%               |                     |             |                                  |                                   |     |    |     |
| Aug'19                 |       | 2312                | 2193                   | 0                          | 119   | 5.1%        |             |            | 0          | 59                           | 1                               | 6                             | 3                   | 50                | 60                    | 2.6%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'19                 |       | 3019                | 2461                   | 0                          | 558   | 18.5%       |             |            | 0          | 60                           | 10                              | 50                            | 25                  | 413               | 498                   | 16.5%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'19                 |       | 4682                | 3007                   | 0                          | 1675  | 35.8%       |             |            | 0          | 63                           | 32                              | 161                           | 81                  | 1338              | 1612                  | 34.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'19                 |       | 4777                | 3551                   | 0                          | 1226  | 25.7%       |             |            | 0          | 64                           | 23                              | 116                           | 58                  | 965               | 1162                  | 24.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'19                 |       | 5971                | 2914                   | 0                          | 3057  | 51.2%       |             |            | 0          | 66                           | 60                              | 299                           | 150                 | 2483              | 2991                  | 50.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'20                 |       | 5241                | 3735                   | 0                          | 1506  | 28.7%       |             |            | 0          | 64                           | 29                              | 144                           | 72                  | 1196              | 1442                  | 27.5%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'20                 |       | 5429                | 3847                   | 0                          | 1582  | 29.1%       |             |            | 0          | 65                           | 30                              | 152                           | 76                  | 1259              | 1517                  | 27.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'20                  |       | 5991                | 3689                   | 0                          | 2302  | 38.4%       |             |            | 0          | 66                           | 45                              | 224                           | 112                 | 1856              | 2236                  | 37.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'20                 |       | 5014                | 2785                   | 0                          | 2229  | 44.5%       |             |            | 0          | 64                           | 43                              | 216                           | 108                 | 1797              | 2165                  | 43.2%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'20                 |       | 4114                | 2707                   | 0                          | 1407  | 34.2%       |             |            | 0          | 62                           | 27                              | 134                           | 67                  | 1116              | 1345                  | 32.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'20                 |       | 2891                | 2063                   | 0                          | 828   | 28.6%       |             |            | 0          | 60                           | 15                              | 77                            | 38                  | 638               | 788                   | 26.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'20                 | 20/21 | 2596                | 2505                   | 0                          | 91    | 3.5%        | 13395       | 23.7%      | 0          | 59                           | 1                               | 3                             | 2                   | 26                | 32                    | 1.2%                 | 12634                | 22.4%               |                     |             |                                  |                                   |     |    |     |
| Aug'20                 |       | 3365                | 6272                   | 0                          | -2907 | -86.4%      |             |            | 0          | 61                           | -59                             | -297                          | -148                | -2463             | -2967                 | -88.2%               |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'20                 |       | 3338                | 1829                   | 0                          | 1509  | 45.2%       |             |            | 0          | 61                           | 29                              | 145                           | 72                  | 1202              | 1448                  | 43.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'20                 |       | 5151                | 3884                   | 0                          | 2067  | 40.1%       |             |            | 0          | 64                           | 40                              | 200                           | 100                 | 1662              | 2003                  | 38.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'20                 |       | 4607                | 2735                   | 0                          | 1872  | 40.6%       |             |            | 0          | 63                           | 36                              | 181                           | 90                  | 1501              | 1809                  | 39.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'20                 |       | 5160                | 3864                   | 0                          | 1296  | 25.1%       |             |            | 0          | 64                           | 25                              | 123                           | 62                  | 1022              | 1232                  | 23.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'21                 |       | 6745                | 5148                   | 0                          | 1597  | 23.7%       |             |            | 0          | 67                           | 31                              | 153                           | 76                  | 1270              | 1530                  | 22.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'21                 |       | 6896                | 4528                   | 0                          | 2368  | 34.3%       |             |            | 0          | 68                           | 46                              | 230                           | 115                 | 1909              | 2300                  | 33.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'21                  |       | 5167                | 3747                   | 0                          | 1420  | 27.5%       |             |            | 0          | 64                           | 27                              | 136                           | 68                  | 1126              | 1356                  | 26.2%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'21                 |       | 5733                | 3657                   | 0                          | 2076  | 36.2%       |             |            | 0          | 65                           | 40                              | 201                           | 101                 | 1669              | 2011                  | 35.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'21                 |       | 5021                | 3180                   | 0                          | 1841  | 36.7%       |             |            | 0          | 64                           | 36                              | 178                           | 89                  | 1475              | 1777                  | 35.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'21                 |       | 2633                | 2468                   | 0                          | 165   | 6.3%        |             |            | 0          | 59                           | 2                               | 11                            | 5                   | 88                | 105                   | 4.0%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'21                 | 21/22 | 2736                | 2265                   | 0                          | 471   | 17.2%       | 12099       | 21.8%      | 0          | 140                          | 7                               | 33                            | 17                  | 274               | 330                   | 12.1%                | 10368                | 18.7%               |                     |             |                                  |                                   |     |    |     |
| Aug'21                 |       | 2921                | 2834                   | 0                          | 87    | 3.0%        |             |            | 0          | 141                          | -1                              | -5                            | -3                  | -44               | -54                   | -1.8%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'21                 |       | 3138                | 2375                   | 0                          | 763   | 24.3%       |             |            | 0          | 141                          | 12                              | 62                            | 31                  | 516               | 622                   | 19.8%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'21                 |       | 4303                | 3174                   | 0                          | 1129  | 26.2%       |             |            | 0          | 144                          | 20                              | 99                            | 49                  | 818               | 986                   | 22.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'21                 |       | 4880                | 3472                   | 0                          | 1408  | 28.9%       |             |            | 0          | 145                          | 25                              | 126                           | 63                  | 1048              | 1263                  | 25.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'21                 |       | 5438                | 3554                   | 0                          | 1884  | 34.6%       |             |            | 0          | 146                          | 35                              | 174                           | 87                  | 1443              | 1737                  | 32.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'22                 |       | 7133                | 4443                   | 0                          | 2690  | 37.7%       |             |            | 0          | 149                          | 51                              | 254                           | 127                 | 2109              | 2541                  | 35.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'22                 |       | 8337                | 8177                   | 0                          | 160   | 1.9%        |             |            | 0          | 152                          | 0                               | 1                             | 0                   | 7                 | 8                     | 0.1%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'22                  |       | 5583                | 2976                   | 0                          | 2608  | 46.7%       |             |            | 0          | 146                          | 49                              | 246                           | 123                 | 2043              | 2461                  | 44.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'22                 |       | 3025                | 2589                   | 0                          | 436   | 14.4%       |             |            | 0          | 141                          | 6                               | 29                            | 15                  | 245               | 295                   | 9.7%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'22                 |       | 4462                | 4136                   | 0                          | 326   | 7.3%        |             |            | 0          | 144                          | 4                               | 18                            | 9                   | 151               | 182                   | 4.1%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'22                 |       | 3461                | 3323                   | 0                          | 138   | 4.0%        |             |            | 0          | 142                          | 0                               | 0                             | 0                   | -3                | -4                    | -0.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'22                 | 22/23 | 2763                | 2605                   | 0                          | 158   | 5.7%        | 7337        | 13.5%      | 0          | 141                          | 0                               | 2                             | 1                   | 15                | 18                    | 0.6%                 | 5608                 | 10.4%               |                     |             |                                  |                                   |     |    |     |
| Aug'22                 |       | 4202                | 3536                   | 0                          | 666   | 15.9%       |             |            | 0          | 143                          | 10                              | 52                            | 26                  | 434               | 523                   | 12.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'22                 |       | 3937                | 2993                   | 0                          | 954   | 24.2%       |             |            | 0          | 143                          | 16                              | 81                            | 41                  | 674               | 812                   | 20.6%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'22                 |       | 4777                | 3220                   | 0                          | 1057  | 22.1%       |             |            | 0          | 145                          | 18                              | 75                            | 91                  | 916               | 1018                  | 19.1%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'22                 |       | 4874                | 4527                   | 0                          | 347   | 7.1%        |             |            | 0          | 145                          | 4                               | 20                            | 10                  | 168               | 202                   | 4.1%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'22                 |       | 5799                | 4290                   | 0                          | 1509  | 26.0%       |             |            | 0          | 147                          | 27                              | 136                           | 68                  | 1131              | 1362                  | 23.5%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'23                 |       | 5968                | 4871                   | 0                          | 1097  | 18.4%       |             |            | 0          | 147                          | 19                              | 95                            | 48                  | 789               | 950                   | 15.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'23                 |       | 5370                | 4580                   | 0                          | 514   | 9.6%        |             |            | 0          | 146                          | 7                               | 96                            | 37                  | 595               | 693                   | 6.9%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'23                  |       | 4201                | 3030                   | 0                          | -879  | -20.9%      |             |            | 0          | 143                          | -20                             | -102                          | -849                | -1023             | -20.3%                |                      |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'23                 |       | 4352                | 4414                   | 0                          | -62   | -1.4%       |             |            | 0          | 144                          | -4                              | -21                           | -10                 | -170              | -205                  | -4.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'23                 |       | 4462                | 2553                   | 0                          | 1909  | 42.8%       |             |            | 0          | 144                          | 35                              | 176                           | 88                  | 1465              | 1765                  | 39.5%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'23                 |       | 3463                | 3397                   | 0                          | 66    | 1.9%        |             |            | 0          | 142                          | -2                              | -8                            | -4                  | -63               | -75                   | -2.2%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'23                 | 23/24 | 1212                | 2366                   | 0                          | -1153 | -95.1%      | 7382        | 13.1%      | 0          | 137                          | -26                             | -129                          | -46                 | -325              | -428                  | -106.5%              | 5649                 | 10.0%               |                     |             |                                  |                                   |     |    |     |
| Aug'23                 |       | 0                   | 3403                   | 0                          | -3403 | 0           |             |            | 135        | -71                          | -354                            | -177                          | -2937               | -3458             |                       |                      |                      |                     |                     |             |                                  |                                   |     |    |     |
| Sep'23                 |       | 0                   | 3578                   | 0                          | -3578 | 0           |             |            | 135        | -74                          | -371                            | -186                          | -3082               | -3713             |                       |                      |                      |                     |                     |             |                                  |                                   |     |    |     |
| Oct'23                 |       | 5507                | 3585                   | 0                          | 1922  | 34.9%       |             |            | 0          | 146                          | 36                              | 178                           | 89                  | 1474              | 1776                  | 32.2%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Nov'23                 |       | 6711                | 5024                   | 0                          | 1687  | 25.1%       |             |            | 0          | 148                          | 31                              | 154                           | 77                  | 1277              | 1539                  | 22.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Dec'23                 |       | 7373                | 4777                   | 0                          | 2596  | 35.2%       |             |            | 0          | 150                          | 49                              | 245                           | 122                 | 2030              | 2446                  | 32.4%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jan'24                 |       | 7289                | 4991                   | 0                          | 1807  | 22.9%       |             |            | 0          | 150                          | 29                              | 129                           | 65                  | 1046              | 1259                  | 20.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Feb'24                 |       | 7699                | 4602                   | 0                          | 3097  | 40.2%       |             |            | 0          | 150                          | 59                              | 295                           | 147                 | 2445              | 2946                  | 38.3%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Mr'24                  |       | 5839                | 4055                   | 0                          | 1784  | 30.6%       |             |            | 0          | 147                          | 33                              | 164                           | 82                  | 1359              | 1637                  | 28.0%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Apr'24                 |       | 5437                | 4708                   | 0                          | 729   | 13.4%       |             |            | 0          | 146                          | 12                              | 58                            | 29                  | 484               | 583                   | 10.7%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| May'24                 |       | 5327                | 3586                   | 0                          | 1741  | 32.7%       |             |            | 0          | 146                          | 32                              | 160                           | 80                  | 1324              | 1595                  | 29.9%                |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jun'24                 |       | 4102                | 3747                   | 0                          | 355   | 8.6747      |             |            | 0          | 143                          | 35                              | 71                            | 21                  | 211               | 251                   | 5.2%                 |                      |                     |                     |             |                                  |                                   |     |    |     |
| Jul'24                 | 24/25 | 3706                | 3647                   | 0                          | 659   | 17.8%       | 12014       | 17.5%      | 0          | 142                          | 10                              | 52                            | 26                  | 429               | 517                   | 14.0%                | 10257                | 14.9%               |                     |             |                                  |                                   |     |    |     |
| Aug'24                 |       | 3674                | 3496                   | 0                          | 178   | 4.8%        |             |            | 0          | 142                          | 1                               | 4                             | 2                   | 30                | 36                    | 1                    |                      |                     |                     |             |                                  |                                   |     |    |     |

WATER BALANCE AND USAGE FOR KORINGBERG DISTRIBUTION SYSTEM

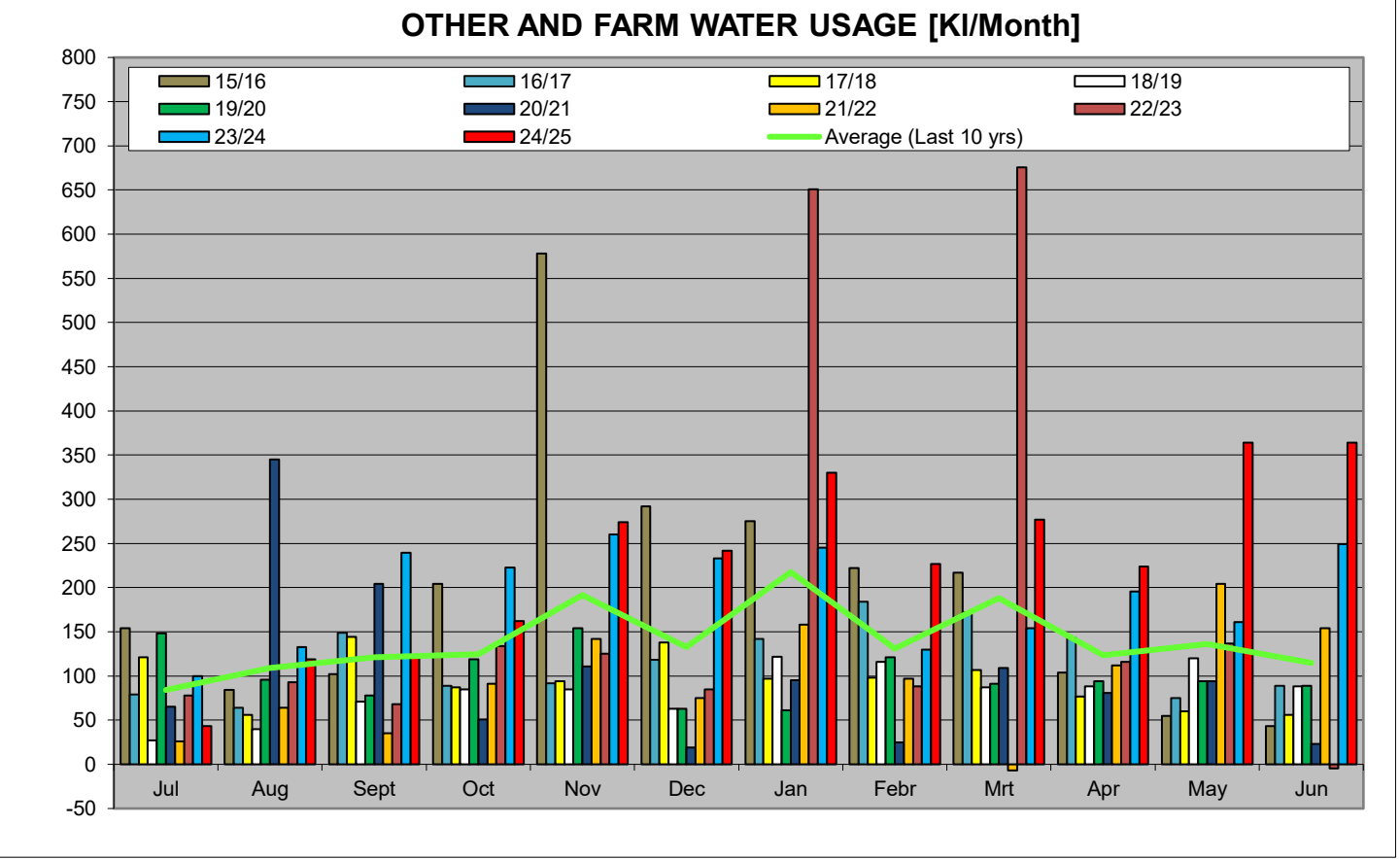
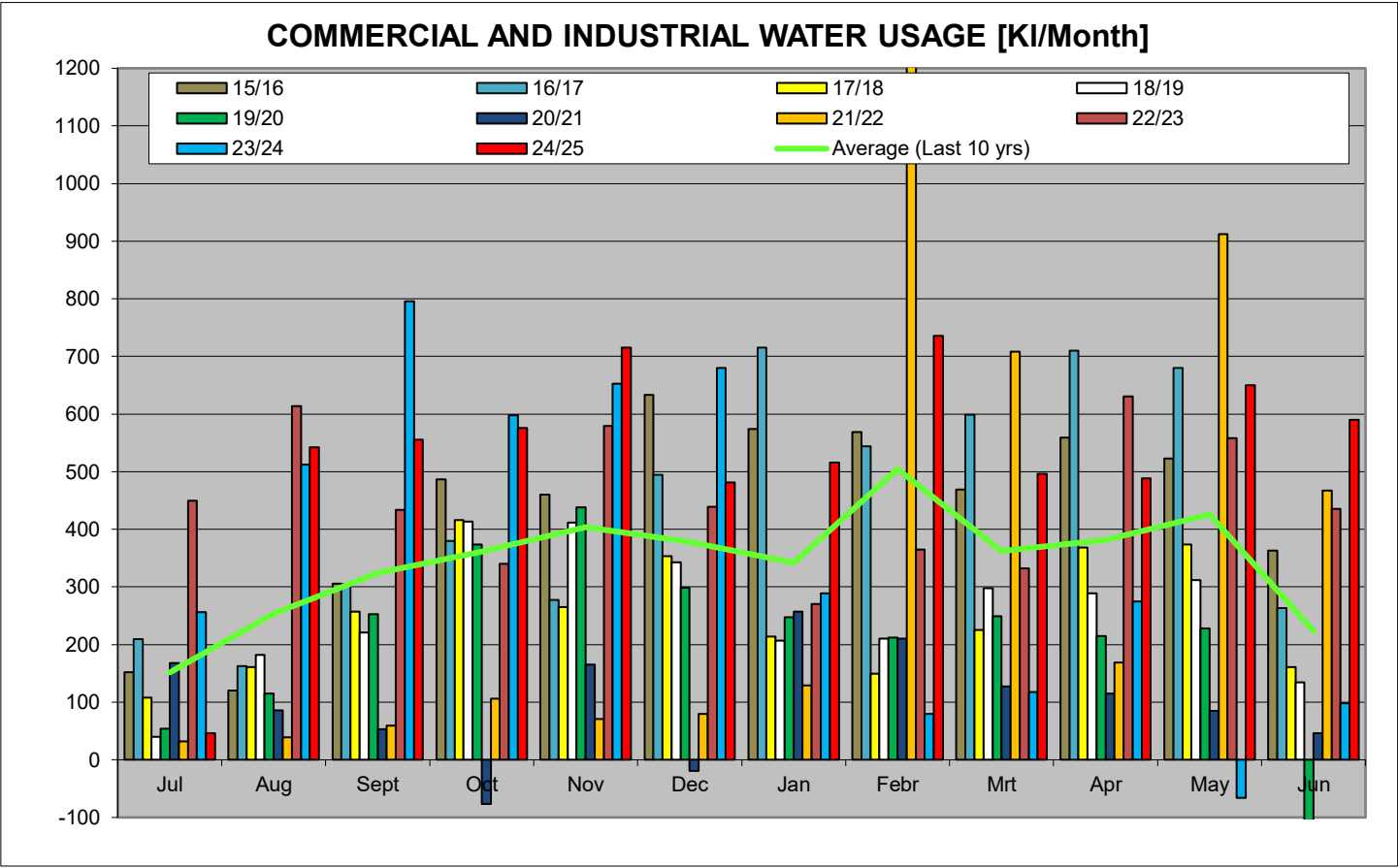
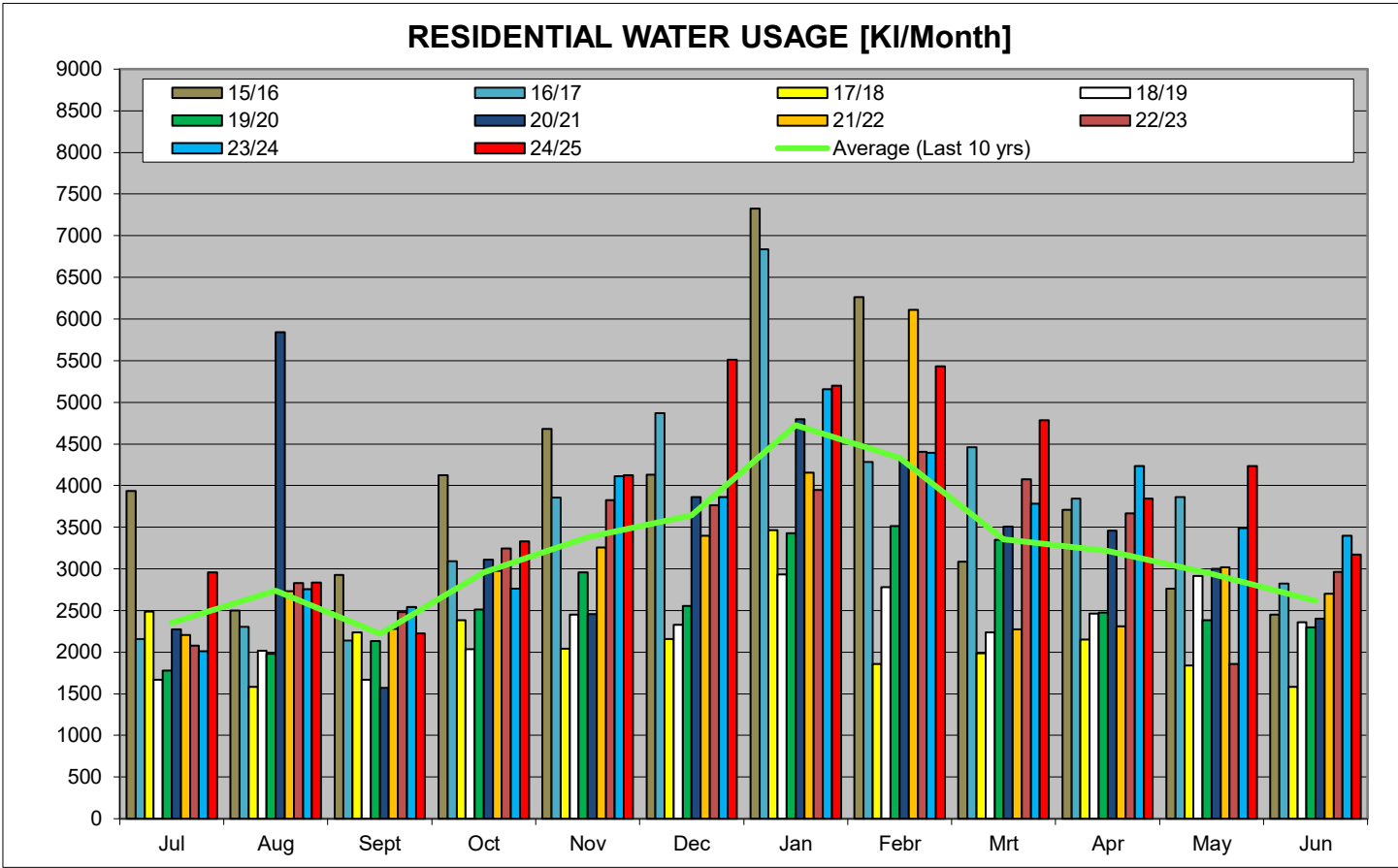


WATER BALANCE AND USAGE FOR KORINGBERG DISTRIBUTION SYSTEM





WATER BALANCE AND USAGE FOR KORINGBERG DISTRIBUTION SYSTEM

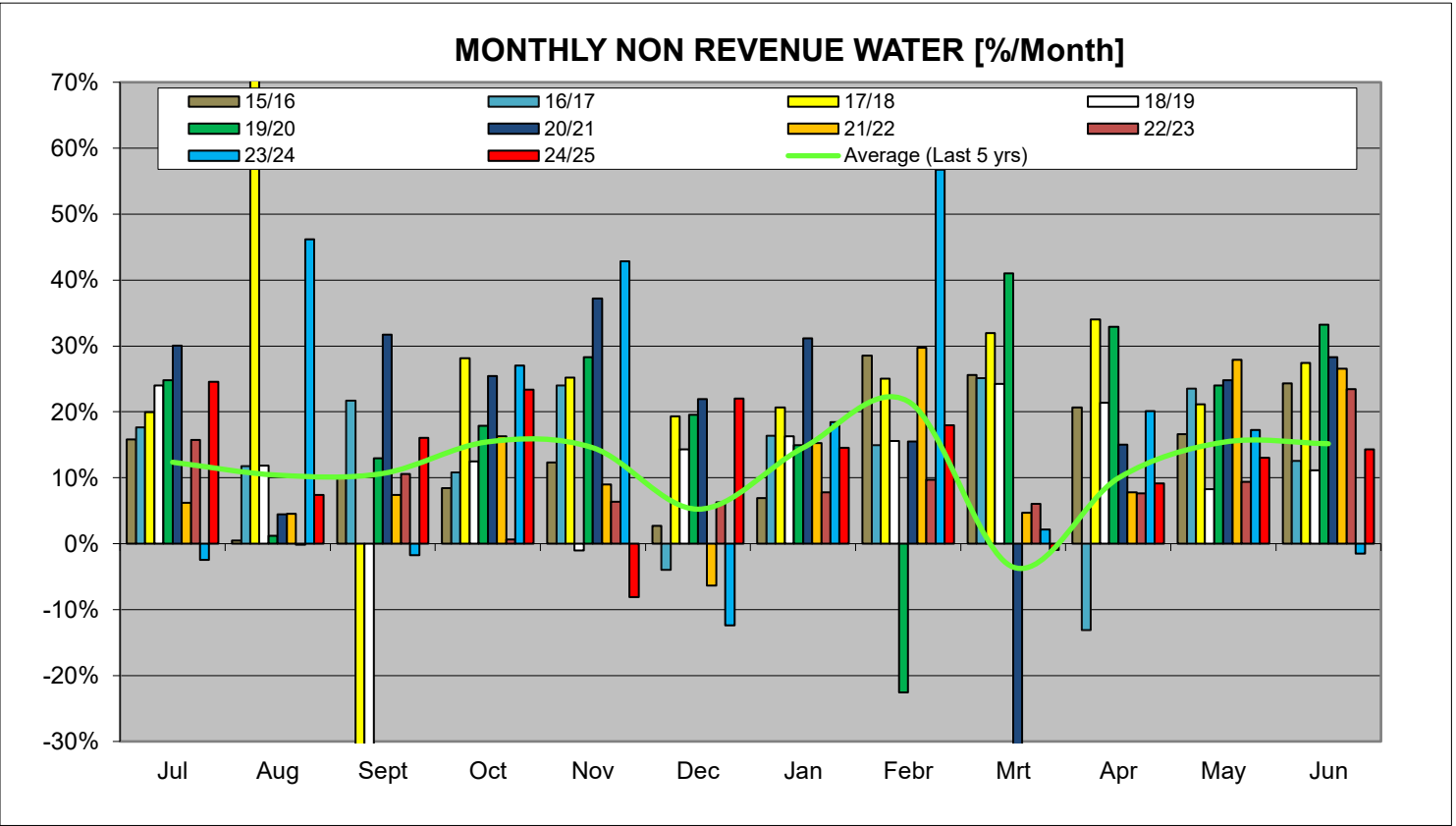
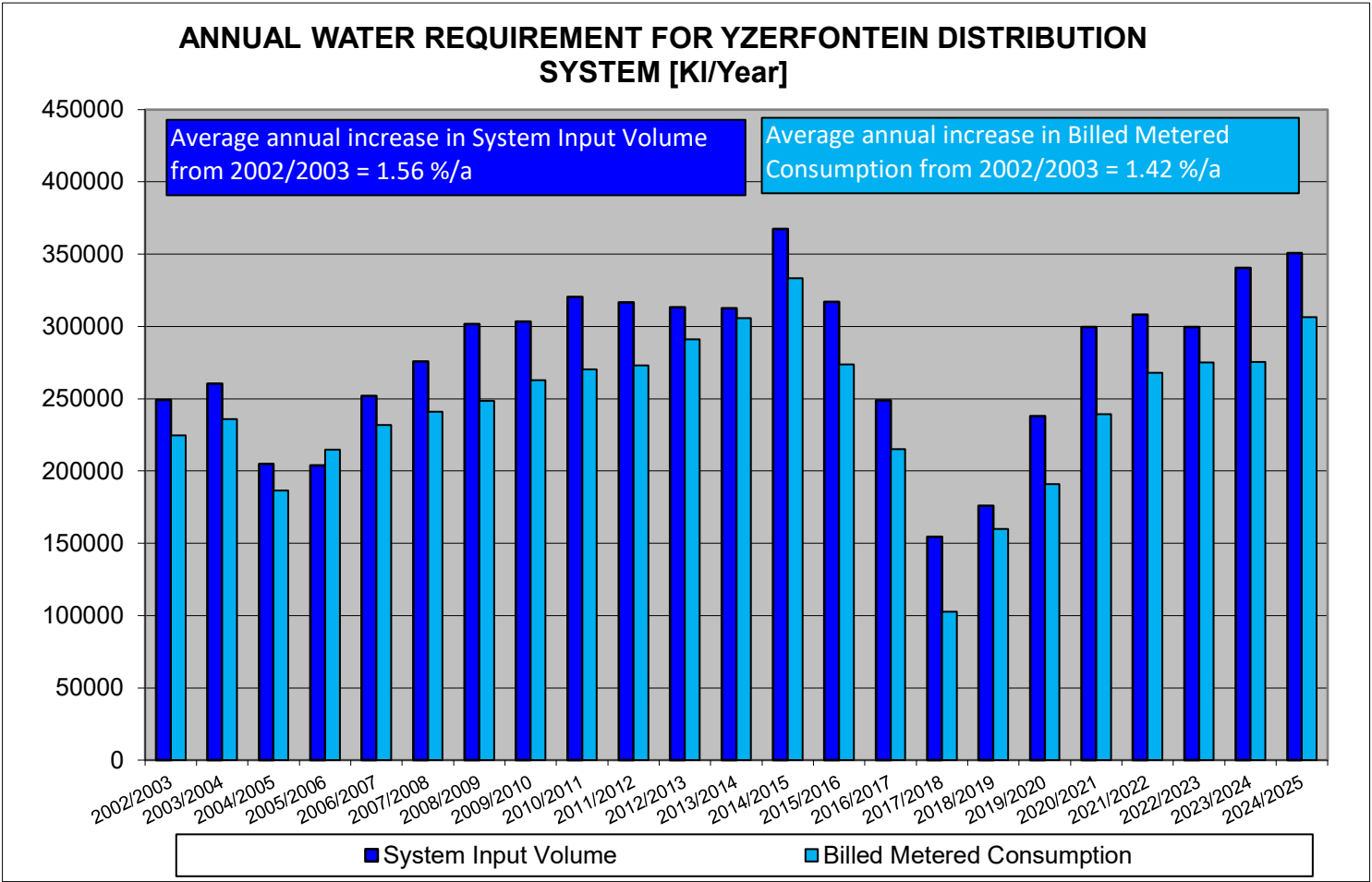
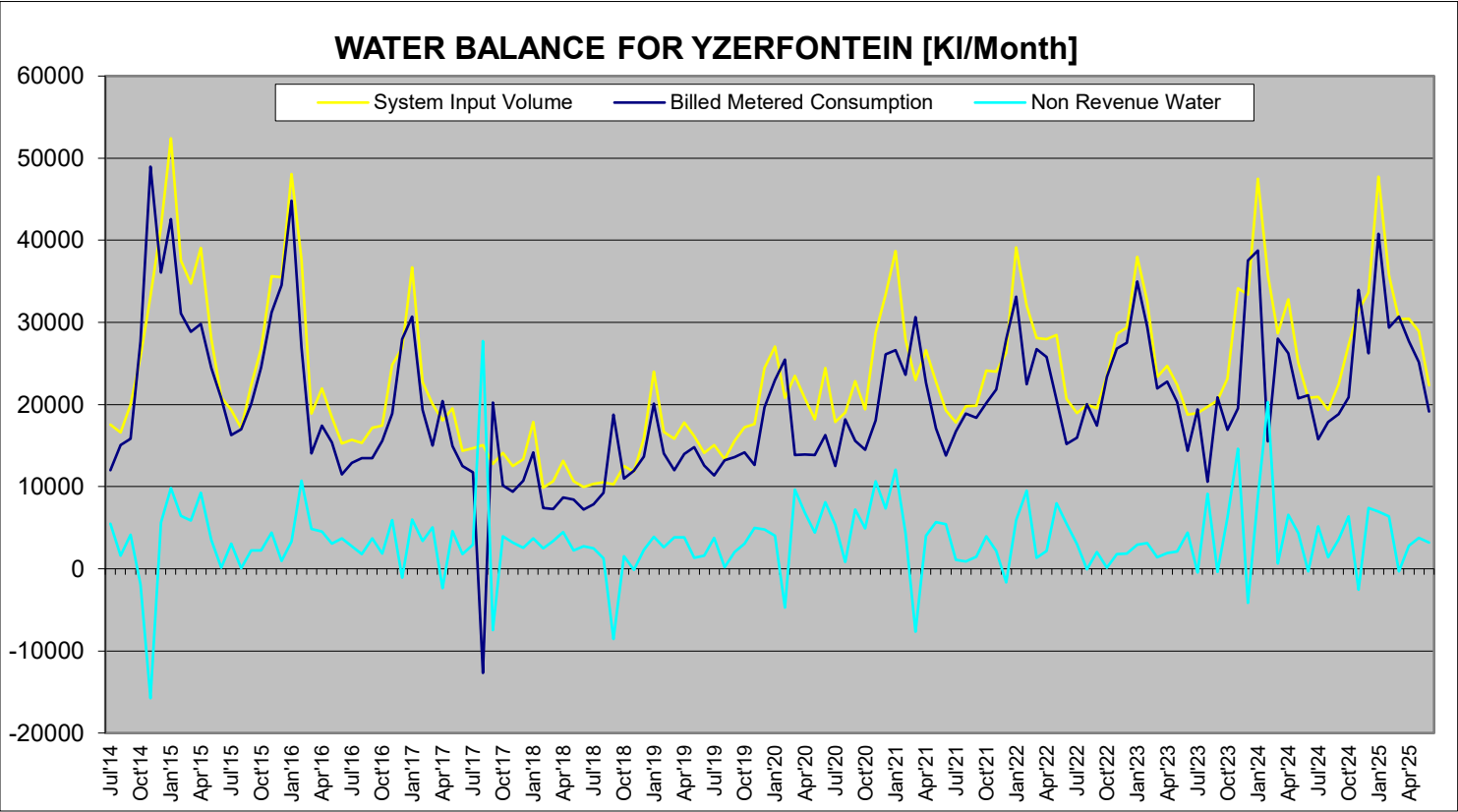




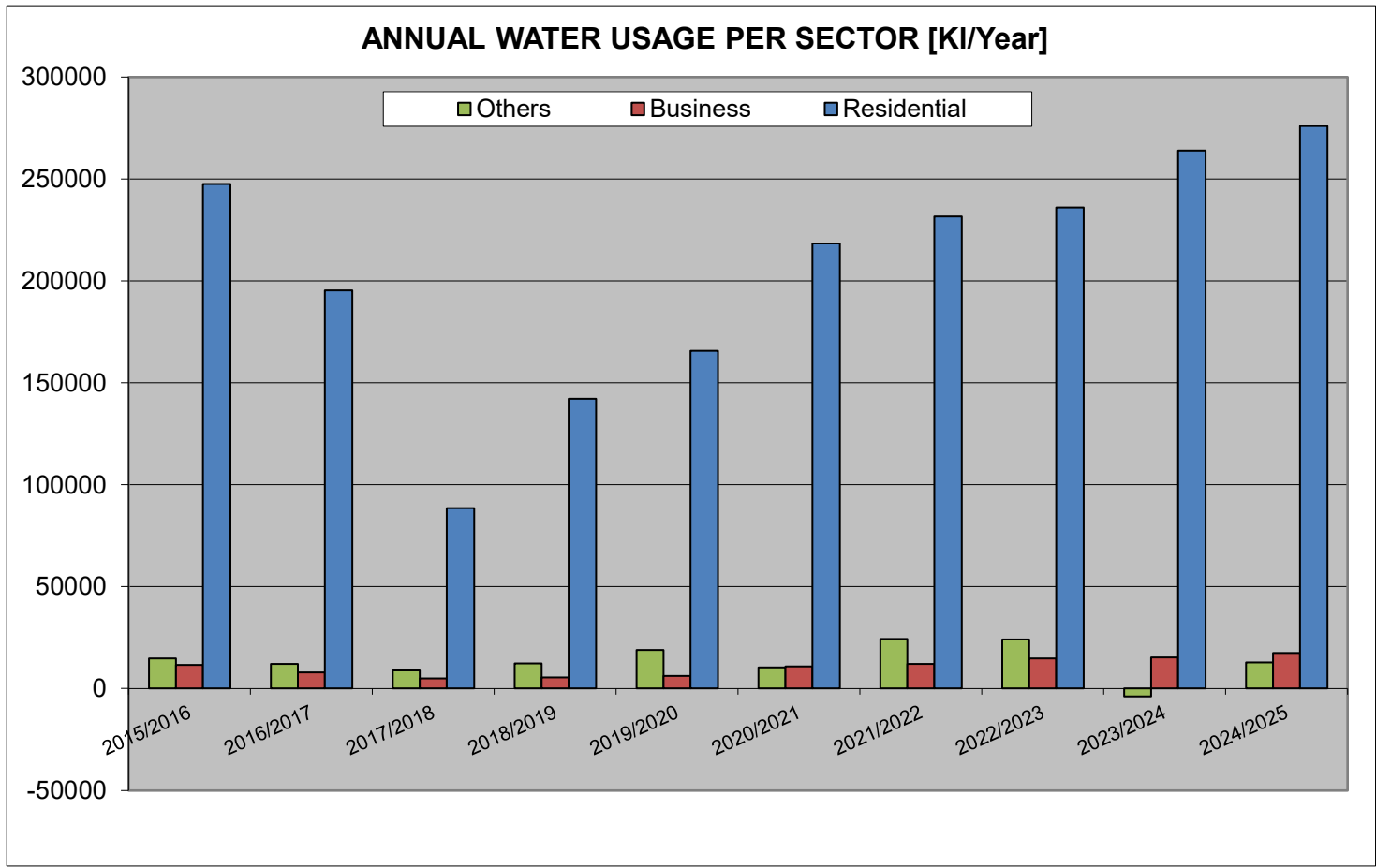
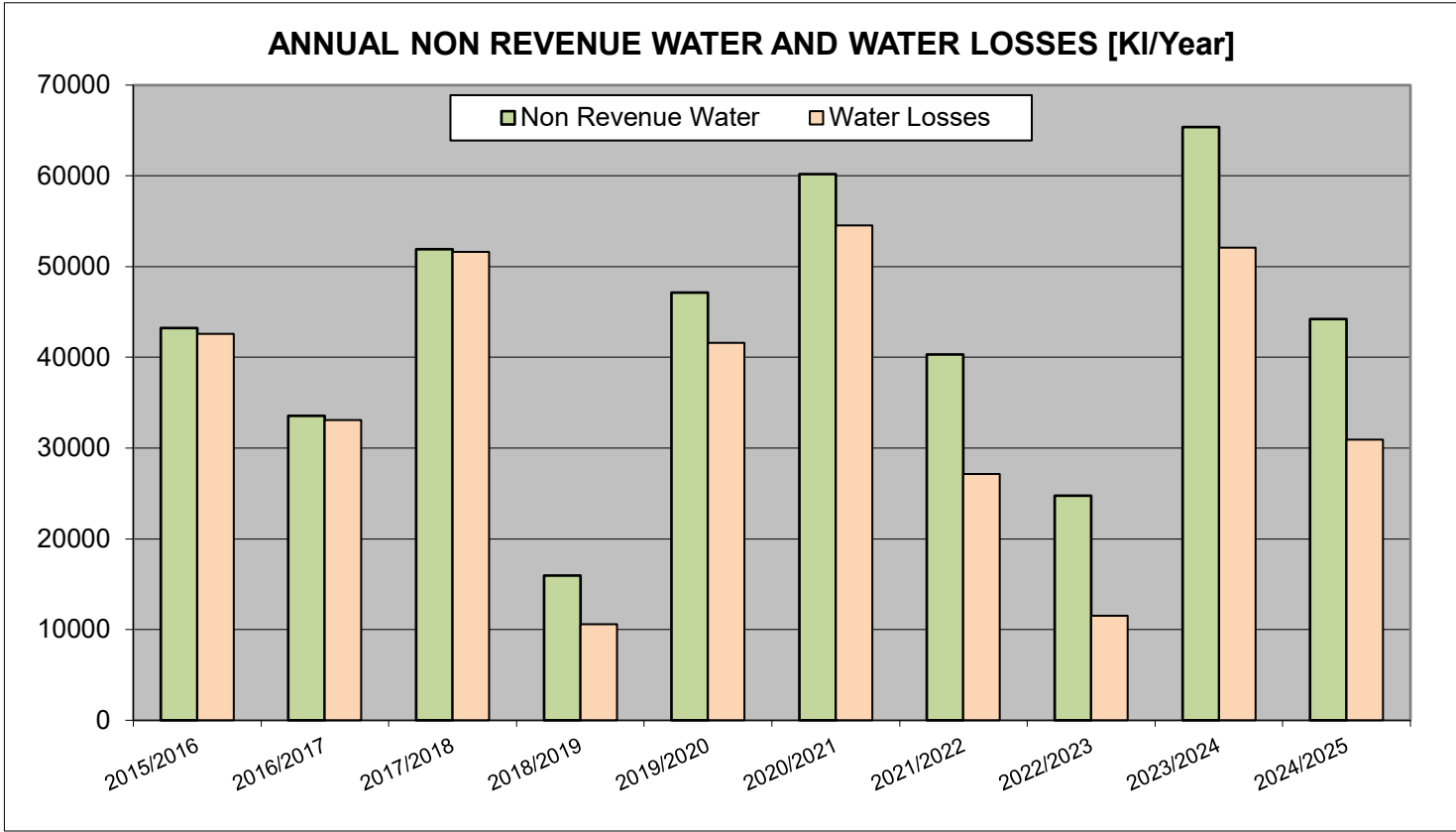
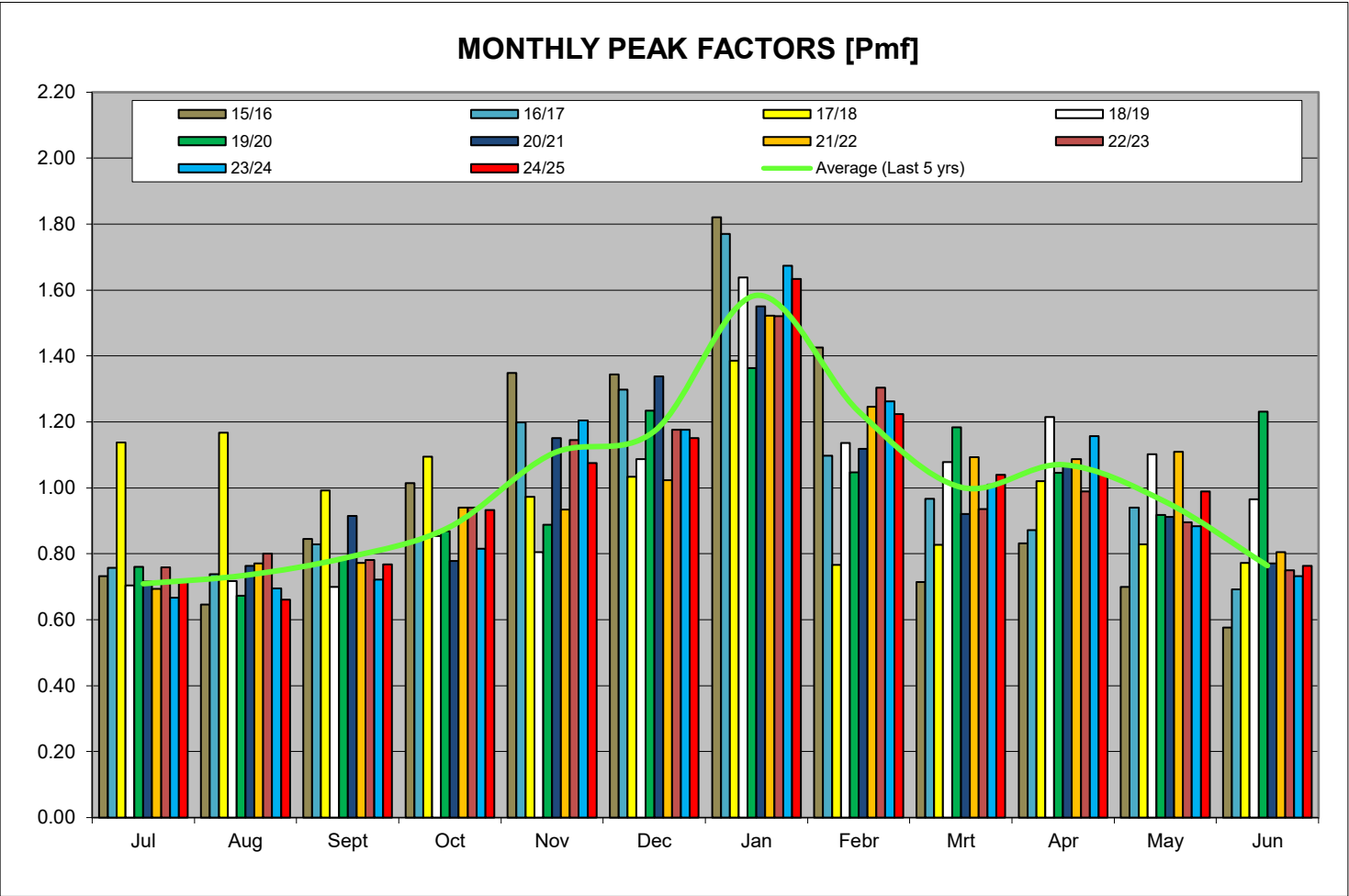


| SWARTLAND MUNICIPALITY |       |                         |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |
|------------------------|-------|-------------------------|----------------------------|-------------------------------|-------------|-------------|------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------|-------------|----------------------|----------------------|---------------------|---------------------|-----------------------------------|-------|
| Yzerfontein            |       |                         |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |
| TREATED WATER SUPPLY   |       |                         |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |
| Month                  | Year  | Non Revenue Water (NRW) |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |
|                        |       | System Input Volume     |                            | Revenue Water                 |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |
|                        |       | Treated Water from WTW  | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       |                                  | Real Losses | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |                                   |       |
|                        |       |                         |                            |                               |             |             |            |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |             |                      |                      |                     |                     |                                   |       |
|                        |       |                         |                            |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     | Estimated Percentages (Variables) |       |
| 2%                     | 10%   | 5%                      | 83%                        |                               |             |             |            |            |                              |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |
| [m³]                   | [m³]  | [m³]                    | [m³]                       | [%]                           | [m³]        | [%]         | [m³]       | [m³]       | [m³]                         | [m³]                            | [m³]                | [m³]              | [m³]                  | [m³]                             | [m³]        | [m³]                 | [m³]                 | [%]                 |                     |                                   |       |
| Jul15                  | 19352 | 16288                   | 0                          | 3064                          | 15.8%       | 43238       | 13.6%      | 0          | 39                           | 61                              | 303                 | 151               | 2511                  | 3025                             | 15.6%       | 42604                | 13.4%                |                     |                     |                                   |       |
| Aug15                  | 17083 | 16998                   | 0                          | 85                            | 0.5%        |             |            | 0          | 34                           | 1                               | 5                   | 3                 | 42                    | 51                               | 0.3%        |                      |                      |                     |                     |                                   |       |
| Sep15                  | 23327 | 20961                   | 0                          | 2266                          | 10.1%       |             |            | 0          | 45                           | 44                              | 222                 | 111               | 1844                  | 2221                             | 9.9%        |                      |                      |                     |                     |                                   |       |
| Oct15                  | 26808 | 24542                   | 0                          | 2266                          | 8.5%        |             |            | 0          | 54                           | 44                              | 221                 | 111               | 1836                  | 2212                             | 8.3%        |                      |                      |                     |                     |                                   |       |
| Nov15                  | 35620 | 31230                   | 0                          | 4390                          | 12.3%       |             |            | 0          | 71                           | 86                              | 432                 | 216               | 3585                  | 4319                             | 12.1%       |                      |                      |                     |                     |                                   |       |
| Dec15                  | 35516 | 34554                   | 0                          | 962                           | 2.7%        |             |            | 0          | 71                           | 18                              | 89                  | 45                | 740                   | 891                              | 2.5%        |                      |                      |                     |                     |                                   |       |
| Jan16                  | 48106 | 42106                   | 0                          | 6000                          | 12.5%       |             |            | 0          | 96                           | 64                              | 321                 | 161               | 2667                  | 3214                             | 6.7%        |                      |                      |                     |                     |                                   |       |
| Feb16                  | 37682 | 26932                   | 0                          | 10750                         | 28.5%       |             |            | 0          | 75                           | 213                             | 1067                | 534               | 8860                  | 10675                            | 28.3%       |                      |                      |                     |                     |                                   |       |
| Mar16                  | 18890 | 14051                   | 0                          | 4839                          | 25.6%       |             |            | 0          | 38                           | 96                              | 480                 | 240               | 3985                  | 4801                             | 25.4%       |                      |                      |                     |                     |                                   |       |
| Apr16                  | 21960 | 17427                   | 0                          | 4533                          | 20.6%       |             |            | 0          | 44                           | 90                              | 449                 | 224               | 3726                  | 4489                             | 20.4%       |                      |                      |                     |                     |                                   |       |
| May16                  | 18465 | 15398                   | 0                          | 3067                          | 16.6%       |             |            | 0          | 37                           | 79                              | 303                 | 152               | 2515                  | 3030                             | 16.4%       |                      |                      |                     |                     |                                   |       |
| Jun16                  | 15230 | 11524                   | 0                          | 3706                          | 24.3%       |             |            | 0          | 30                           | 74                              | 368                 | 184               | 3051                  | 3676                             | 24.1%       |                      |                      |                     |                     |                                   |       |
| Jul16                  | 15704 | 12928                   | 0                          | 2776                          | 17.7%       | 33577       | 13.5%      | 0          | 31                           | 55                              | 274                 | 137               | 2278                  | 2745                             | 17.5%       | 33079                | 13.3%                |                     |                     |                                   |       |
| Aug16                  | 15304 | 13502                   | 0                          | 1802                          | 11.8%       |             |            | 0          | 31                           | 35                              | 177                 | 89                | 1470                  | 1771                             | 11.6%       |                      |                      |                     |                     |                                   |       |
| Sep16                  | 17173 | 13441                   | 0                          | 3732                          | 21.7%       |             |            | 0          | 34                           | 74                              | 370                 | 185               | 3069                  | 3698                             | 21.5%       |                      |                      |                     |                     |                                   |       |
| Oct16                  | 17452 | 15569                   | 0                          | 1883                          | 10.8%       |             |            | 0          | 35                           | 37                              | 185                 | 92                | 1534                  | 1848                             | 10.6%       |                      |                      |                     |                     |                                   |       |
| Nov16                  | 24860 | 18895                   | 0                          | 5965                          | 24.0%       |             |            | 0          | 50                           | 118                             | 592                 | 296               | 4910                  | 5915                             | 23.8%       |                      |                      |                     |                     |                                   |       |
| Dec16                  | 26909 | 27977                   | 0                          | -1088                         | -4.0%       |             |            | 0          | 54                           | -22                             | -112                | -56               | -931                  | -1122                            | -4.2%       |                      |                      |                     |                     |                                   |       |
| Jan17                  | 36703 | 30998                   | 0                          | 6005                          | 16.4%       |             |            | 0          | 73                           | 119                             | 593                 | 297               | 4923                  | 5932                             | 16.2%       |                      |                      |                     |                     |                                   |       |
| Feb17                  | 22746 | 19341                   | 0                          | 3405                          | 15.0%       |             |            | 0          | 45                           | 67                              | 336                 | 168               | 2788                  | 3360                             | 14.8%       |                      |                      |                     |                     |                                   |       |
| Mar17                  | 20057 | 19014                   | 0                          | 5043                          | 25.1%       |             |            | 0          | 40                           | 100                             | 500                 | 250               | 4152                  | 5003                             | 24.9%       |                      |                      |                     |                     |                                   |       |
| Apr17                  | 18090 | 20454                   | 0                          | -2354                         | -13.1%      |             |            | 0          | 36                           | -48                             | -240                | -120              | -1992                 | -2400                            | -13.3%      |                      |                      |                     |                     |                                   |       |
| May17                  | 19505 | 14910                   | 0                          | 4595                          | 23.6%       |             |            | 0          | 39                           | 91                              | 456                 | 228               | 3781                  | 4556                             | 23.4%       |                      |                      |                     |                     |                                   |       |
| Jun17                  | 14342 | 12539                   | 0                          | 1803                          | 12.6%       |             |            | 0          | 29                           | 35                              | 177                 | 89                | 1473                  | 1774                             | 12.4%       |                      |                      |                     |                     |                                   |       |
| Jul17                  | 14657 | 11730                   | 0                          | 2927                          | 20.0%       | 51830       | 33.6%      | 0          | 29                           | 58                              | 290                 | 145               | 2405                  | 2898                             | 19.8%       | 51621                | 33.4%                |                     |                     |                                   |       |
| Aug17                  | 15048 | -12684                  | 0                          | 27732                         | 184.3%      |             |            | 0          | 30                           | 554                             | 2770                | 1385              | 22993                 | 27702                            | 184.1%      |                      |                      |                     |                     |                                   |       |
| Sep17                  | 12782 | 20242                   | 0                          | -7460                         | -58.4%      |             |            | 0          | 26                           | -150                            | -749                | -374              | -6213                 | -7486                            | -58.6%      |                      |                      |                     |                     |                                   |       |
| Oct17                  | 14098 | 10132                   | 0                          | 3966                          | 28.1%       |             |            | 0          | 28                           | 79                              | 394                 | 197               | 3269                  | 3938                             | 27.9%       |                      |                      |                     |                     |                                   |       |
| Nov17                  | 12540 | 9376                    | 0                          | 3164                          | 25.2%       |             |            | 0          | 25                           | 63                              | 314                 | 157               | 2605                  | 3139                             | 25.0%       |                      |                      |                     |                     |                                   |       |
| Dec17                  | 13316 | 10746                   | 0                          | 2570                          | 19.3%       |             |            | 0          | 27                           | 51                              | 254                 | 127               | 2111                  | 2543                             | 19.1%       |                      |                      |                     |                     |                                   |       |
| Jan18                  | 17861 | 14166                   | 0                          | 3695                          | 20.7%       |             |            | 0          | 36                           | 73                              | 366                 | 183               | 3037                  | 3659                             | 20.5%       |                      |                      |                     |                     |                                   |       |
| Feb18                  | 9875  | 7404                    | 0                          | 2471                          | 25.0%       |             |            | 0          | 20                           | 49                              | 245                 | 123               | 2035                  | 2451                             | 24.8%       |                      |                      |                     |                     |                                   |       |
| Mar18                  | 10654 | 7252                    | 0                          | 3402                          | 31.9%       |             |            | 0          | 21                           | 68                              | 338                 | 169               | 2806                  | 3381                             | 31.7%       |                      |                      |                     |                     |                                   |       |
| Apr18                  | 13151 | 8676                    | 0                          | 4475                          | 34.0%       |             |            | 0          | 26                           | 89                              | 445                 | 222               | 3692                  | 4449                             | 33.8%       |                      |                      |                     |                     |                                   |       |
| May18                  | 10683 | 8424                    | 0                          | 2259                          | 21.1%       |             |            | 0          | 21                           | 45                              | 224                 | 112               | 1857                  | 2238                             | 20.9%       |                      |                      |                     |                     |                                   |       |
| Jun18                  | 9946  | 7217                    | 0                          | 2729                          | 27.4%       |             |            | 0          | 20                           | 54                              | 271                 | 135               | 2249                  | 2709                             | 27.2%       |                      |                      |                     |                     |                                   |       |
| Jul18                  | 10323 | 7842                    | 0                          | 2481                          | 24.0%       | 15977       | 9.1%       | 0          | 441                          | 41                              | 204                 | 102               | 1693                  | 2040                             | 19.8%       | 10585                | 6.0%                 |                     |                     |                                   |       |
| Aug18                  | 10520 | 9272                    | 0                          | 1248                          | 11.9%       |             |            | 0          | 441                          | 16                              | 81                  | 40                | 670                   | 807                              | 7.7%        |                      |                      |                     |                     |                                   |       |
| Sep18                  | 10264 | 18798                   | 0                          | -8534                         | -83.1%      |             |            | 0          | 441                          | -179                            | -897                | -449              | -7449                 | -8975                            | -87.4%      |                      |                      |                     |                     |                                   |       |
| Oct18                  | 12515 | 10954                   | 0                          | 1561                          | 12.5%       |             |            | 0          | 445                          | 22                              | 112                 | 56                | 926                   | 1116                             | 8.9%        |                      |                      |                     |                     |                                   |       |
| Nov18                  | 11796 | 11920                   | 0                          | -124                          | -1.1%       |             |            | 0          | 444                          | -11                             | -57                 | -28               | -471                  | -568                             | -4.8%       |                      |                      |                     |                     |                                   |       |
| Dec18                  | 15926 | 13644                   | 0                          | 2282                          | 14.3%       |             |            | 0          | 452                          | 37                              | 183                 | 92                | 1519                  | 1830                             | 11.5%       |                      |                      |                     |                     |                                   |       |
| Jan19                  | 24007 | 20090                   | 0                          | 3917                          | 16.3%       |             |            | 0          | 468                          | 69                              | 345                 | 172               | 2863                  | 3449                             | 14.4%       |                      |                      |                     |                     |                                   |       |
| Feb19                  | 16661 | 14071                   | 0                          | 2590                          | 15.5%       |             |            | 0          | 453                          | 43                              | 214                 | 107               | 1773                  | 2137                             | 12.8%       |                      |                      |                     |                     |                                   |       |
| Mar19                  | 15805 | 11971                   | 0                          | 3834                          | 24.3%       |             |            | 0          | 452                          | 68                              | 338                 | 169               | 2807                  | 3382                             | 21.4%       |                      |                      |                     |                     |                                   |       |
| Apr19                  | 17798 | 13994                   | 0                          | 3804                          | 21.4%       |             |            | 0          | 456                          | 67                              | 335                 | 167               | 2779                  | 3348                             | 18.8%       |                      |                      |                     |                     |                                   |       |
| May19                  | 16147 | 14906                   | 0                          | 1341                          | 8.3%        |             |            | 0          | 452                          | 18                              | 89                  | 44                | 738                   | 889                              | 5.5%        |                      |                      |                     |                     |                                   |       |
| Jun19                  | 14141 | 12564                   | 0                          | 1577                          | 11.2%       |             |            | 0          | 448                          | 23                              | 113                 | 56                | 937                   | 1129                             | 8.0%        |                      |                      |                     |                     |                                   |       |
| Jul19                  | 15093 | 11349                   | 0                          | 3744                          | 24.8%       | 47109       | 19.8%      | 0          | 450                          | 66                              | 329                 | 165               | 2734                  | 3294                             | 21.8%       | 41593                | 17.5%                |                     |                     |                                   |       |
| Aug19                  | 13356 | 13194                   | 0                          | 162                           | 1.2%        |             |            | 0          | 447                          | -6                              | -28                 | -14               | -236                  | -285                             | -2.1%       |                      |                      |                     |                     |                                   |       |
| Sep19                  | 15605 | 13577                   | 0                          | 2028                          | 13.0%       |             |            | 0          | 451                          | 32                              | 158                 | 79                | 1309                  | 1577                             | 10.1%       |                      |                      |                     |                     |                                   |       |
| Oct19                  | 17252 | 14162                   | 0                          | 3090                          | 17.9%       |             |            | 0          | 455                          | 53                              | 264                 | 132               | 2187                  | 2635                             | 15.3%       |                      |                      |                     |                     |                                   |       |
| Nov19                  | 17620 | 12629                   | 0                          | 4991                          | 28.3%       |             |            | 0          | 455                          | 91                              | 454                 | 227               | 3765                  | 4536                             | 25.7%       |                      |                      |                     |                     |                                   |       |
| Dec19                  | 24484 | 19688                   | 0                          | 4796                          | 19.6%       |             |            | 0          | 469                          | 87                              | 433                 | 216               | 3591                  | 4327                             | 17.7%       |                      |                      |                     |                     |                                   |       |
| Jan20                  | 27042 | 22996                   | 0                          | 4046                          | 15.0%       |             |            | 0          | 474                          | 71                              | 357                 | 179               | 2965                  | 3572                             | 13.2%       |                      |                      |                     |                     |                                   |       |
| Feb20                  | 20791 | 25487                   | 0                          | -4696                         | -22.6%      |             |            | 0          | 462                          | -103                            | -516                | -258              | -4281                 | -5158                            | -24.8%      |                      |                      |                     |                     |                                   |       |
| Mar20                  | 23494 | 13855                   | 0                          | 9639                          | 41.0%       |             |            | 0          | 467                          | 183                             | 917                 | 459               | 7613                  | 9172                             | 39.0%       |                      |                      |                     |                     |                                   |       |
| Apr20                  | 20734 | 13919                   | 0                          | 6815                          | 32.9%       |             |            | 0          | 461                          | 127                             | 635                 | 318               | 5273                  | 6354                             | 30.6%       |                      |                      |                     |                     |                                   |       |
| May20                  | 18214 | 13840                   | 0                          | 4374                          | 24.0%       |             |            | 0          | 456                          | 78                              | 392                 | 196               | 3252                  | 3918                             | 21.5%       |                      |                      |                     |                     |                                   |       |
| Jun20                  | 24431 | 16311                   | 0                          | 8120                          | 33.2%       |             |            | 0          | 469                          | 153                             | 765                 | 383               | 6350                  | 7651                             | 31.3%       |                      |                      |                     |                     |                                   |       |
| Jul20                  | 17858 | 12496                   | 0                          | 5362                          | 30.0%       | 0           | 456        | 98         | 491                          | 245                             | 4073                | 4907              | 27.5%                 |                                  |             |                      |                      |                     |                     |                                   |       |
| Aug20                  | 19040 | 18196                   | 0                          | 844                           | 4.4%        | 0           | 458        | 8          | 39                           | 19                              | 320                 | 385               | 2.0%                  |                                  |             |                      |                      |                     |                     |                                   |       |
| Sep20                  | 22847 | 16606                   | 0                          | 7241                          | 31.7%       | 0           | 466        | 136        | 678                          | 339                             | 5624                | 6775              | 29.7%                 |                                  |             |                      |                      |                     |                     |                                   |       |
| Oct20                  | 19415 | 14480                   | 0                          | 4935                          | 25.4%       | 0           | 459        | 90         | 448                          | 224                             | 3715                | 4476              | 23.1%                 |                                  |             |                      |                      |                     |                     |                                   |       |
| Nov20                  | 28745 | 18065                   | 0                          | 10680                         | 37.2%       | 0           | 477        | 204        | 1020                         | 510                             | 8468                | 10203             | 35.5%                 |                                  |             |                      |                      |                     |                     |                                   |       |
| Dec20                  | 33398 | 26083                   | 0                          | 7315                          | 21.9%       | 60201       | 20.1%      | 0          | 487                          | 137                             | 683                 | 341               | 5668                  | 6829                             | 20.4%       | 54562                | 18.2%                |                     |                     |                                   |       |
| Jan21                  | 38689 | 28621                   | 0                          | 10021                         | 31.2%       |             |            | 0          | 497                          | 1127                            | 572                 | 9037              | 11570                 | 28.9%                            |             |                      |                      |                     |                     |                                   |       |
| Feb21                  | 27919 | 23599                   | 0                          | 4320                          | 15.5%       |             |            | 0          | 476                          | 77                              | 384                 | 192               | 3190                  | 3844                             | 13.8%       |                      |                      |                     |                     |                                   |       |
| Mar21                  | 22969 | 30621                   | 0                          | -7652                         | -33.3%      |             |            | 0          | 466                          | -162                            | -812                | -406              | -6738                 | -8118                            | -35.3%      |                      |                      |                     |                     |                                   |       |
| Apr21                  | 26636 | 22641                   | 0                          | 3995                          | 15.0%       |             |            | 0          | 473                          | 70                              | 352                 | 176               | 2923                  | 3522                             | 13.2%       |                      |                      |                     |                     |                                   |       |
| May21                  | 22710 | 17119                   | 0                          | 56519                         | 24.8%       |             |            | 0          | 466                          | 104                             | 516                 | 259               | 4166                  | 5166                             | 22.8%       |                      |                      |                     |                     |                                   |       |
| Jun21                  | 19251 | 13811                   | 0                          | 5440                          | 28.3%       |             |            | 0          | 459                          | 100                             | 498                 | 249               | 4135                  | 4982                             | 25.9%       |                      |                      |                     |                     |                                   |       |
| Jul21                  | 17821 | 16710                   | 0                          | 1111                          | 6.2%        |             |            | 0          | 1086                         | 1                               | 3                   | 21                | 26                    | 0.1%                             | 27117       |                      |                      |                     | 8.8%                |                                   |       |
| Aug21                  | 19790 | 18897                   | 0                          | 893                           | 4.5%        |             |            | 0          | 1090                         | -4                              | -20                 | -10               | -163                  | -196                             |             |                      |                      |                     |                     |                                   | -1.0% |
| Sep21                  | 19843 | 16843                   | 0                          | 1461                          | 7.4%        |             |            | 0          | 1090                         | 7                               | 43                  | 19                | 308                   | 371                              |             |                      |                      |                     |                     |                                   | 1.9%  |
| Oct21                  | 24147 | 20204                   | 0                          | 3943                          | 16.3%       |             |            | 0          | 1098                         | 57                              | 284                 | 142               | 2361                  | 2844                             |             |                      |                      |                     |                     |                                   | 11.8% |
| Nov21                  | 24014 | 21851                   | 0                          | 2163                          | 9.0%        |             |            | 0          | 1098                         | 21                              | 107                 | 53                | 884                   | 1065                             |             |                      |                      |                     |                     |                                   | 4.4%  |
| Dec21                  | 26297 | 27981                   | 0                          | -1664                         | -6.3%       | 40333       | 13.1%      | 0          | 1103                         | -55                             | -277                | -138              | -2296                 | -2766                            |             | -10.5%               |                      |                     |                     |                                   |       |
| Jan22                  | 33984 | 23923                   | 0                          | 10061                         | 15.2%       |             |            | 0          | 1097                         | 66                              | 331                 | 242               | 4013                  | 4636                             |             | 12.4%                |                      |                     |                     |                                   |       |
| Feb22                  | 30330 | 22500                   | 0                          | 9530                          | 29.8%       |             |            | 0          | 1114                         | 168                             | 842                 | 421               | 6986                  | 8416                             |             | 26.3%                |                      |                     |                     |                                   |       |
| Mar22                  | 28087 | 26762                   | 0                          | 1325                          | 4.7%        |             |            | 0          | 1106                         | 4                               | 22                  | 11                | 182                   | 0.8%                             |             |                      |                      |                     |                     |                                   |       |
| Apr22                  | 27942 | 25775                   | 0                          | 2167                          | 7.8%        |             |            | 0          | 1108                         | 21                              | 106                 | 53                | 881                   | 1061                             |             | 3.8%                 |                      |                     |                     |                                   |       |
| May22                  | 28502 | 20549                   | 0                          | 7953                          | 27.9%       |             |            | 0          | 1107                         | 137                             | 685                 | 342               | 5682                  | 6846                             |             | 24.0%                |                      |                     |                     |                                   |       |
| Jun22                  | 20694 | 15207                   | 0                          | 5487                          | 26.5%       |             |            | 0          | 1097                         | 88                              | 440                 | 220               | 3648                  | 4396                             |             | 21.2%                |                      |                     |                     |                                   |       |
| Jul22                  | 18948 | 15981                   | 0                          | 2987                          | 15.8%       |             |            | 0          | 1088                         | 38                              | 190                 | 95                | 1576                  | 1899                             | 10.0%       |                      |                      |                     |                     |                                   |       |
| Aug22                  | 20009 | 20046                   | 0                          | -37                           | -0.2%       |             |            | 0          | 1090                         | -23                             | -113                | -56               | -936                  | -1128                            | -5.6%       |                      |                      |                     |                     |                                   |       |
| Sep22                  | 19507 | 17446                   | 0                          | 2061                          | 10.6%       |             |            | 0          | 1089                         | 19                              | 97                  | 49                | 807                   | 972                              | 5.0%        |                      |                      |                     |                     |                                   |       |
| Oct22                  | 23502 | 23353                   | 0                          | 147                           | 0.6%        |             |            | 0          | 1107                         | -9                              | -19                 | -8                | -169                  | -490                             | -4.0%       |                      |                      |                     |                     |                                   |       |
| Nov22                  | 28619 | 26900                   | 0                          | 1819                          | 6.4%        |             |            | 0          | 1107                         | 14                              | 71                  | 36                | 590                   | 711                              | 2.5%        |                      |                      |                     |                     |                                   |       |
| Dec22                  | 29378 | 27542                   | 0                          | 1836                          | 6.2%        | 24725       | 8.2%       | 0          | 1109                         | 15                              | 73                  | 36                | 603                   | 727                              | 3.0%        | 11526                | 3.8%                 |                     |                     |                                   |       |
| Jan23                  | 37970 | 35003                   | 0                          | 2967                          | 7.8%        |             |            | 0          | 1126                         | 37                              | 184                 | 92                | 1528                  | 1841                             | 4.8%        |                      |                      |                     |                     |                                   |       |
| Feb23                  | 32574 | 31436                   | 0                          | 1138                          | 4.1%        |             |            | 0          | 1115                         | 41                              | 203                 | 102               | 1687                  | 2033                             | 6.2%        |                      |                      |                     |                     |                                   |       |
| Mar23                  | 23388 | 21967                   | 0                          | 1421                          | 6.1%        |             |            | 0          | 1097                         | 6                               | 32                  | 16                | 289                   | 324                              | 1.4%        |                      |                      |                     |                     |                                   |       |
| Apr23                  | 24709 | 22818                   | 0                          | 1891                          | 7.7%        |             |            | 0          | 1099                         | 16                              | 79                  | 40                | 657                   | 792                              | 3.2%        |                      |                      |                     |                     |                                   |       |
| May23                  | 22378 | 20286                   | 0                          | 2092                          | 9.3%        |             |            | 0          | 1095                         | 20                              | 100                 | 50                | 827                   | 997                              | 4.5%        |                      |                      |                     |                     |                                   |       |
| Jun23                  | 16749 | 14354                   | 0                          | 4395                          | 23.4%       |             |            | 0          | 1087                         |                                 |                     |                   |                       |                                  |             |                      |                      |                     |                     |                                   |       |

IWA WATER BALANCE FOR YZERFONTEIN DISTRIBUTION SYSTEM

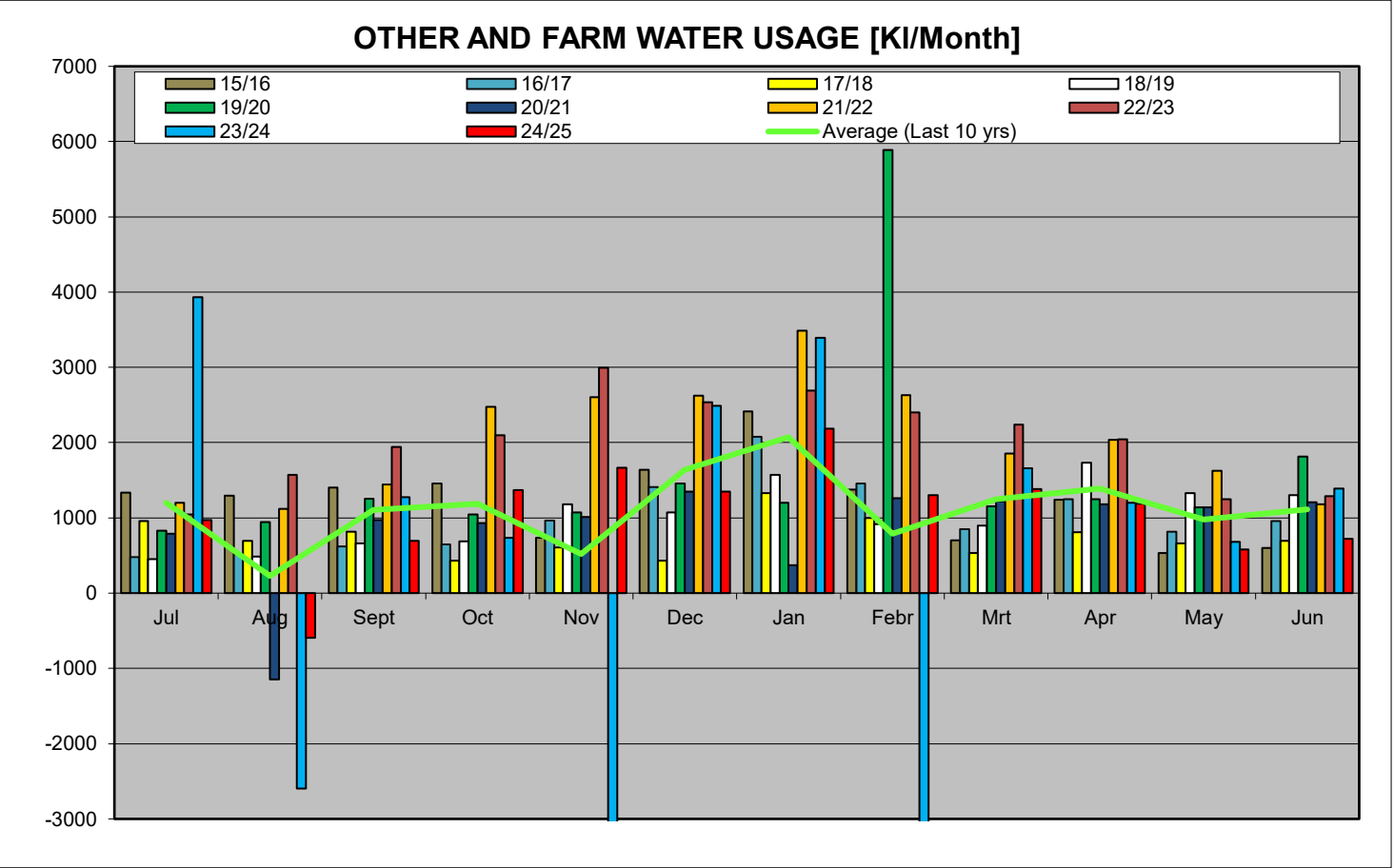
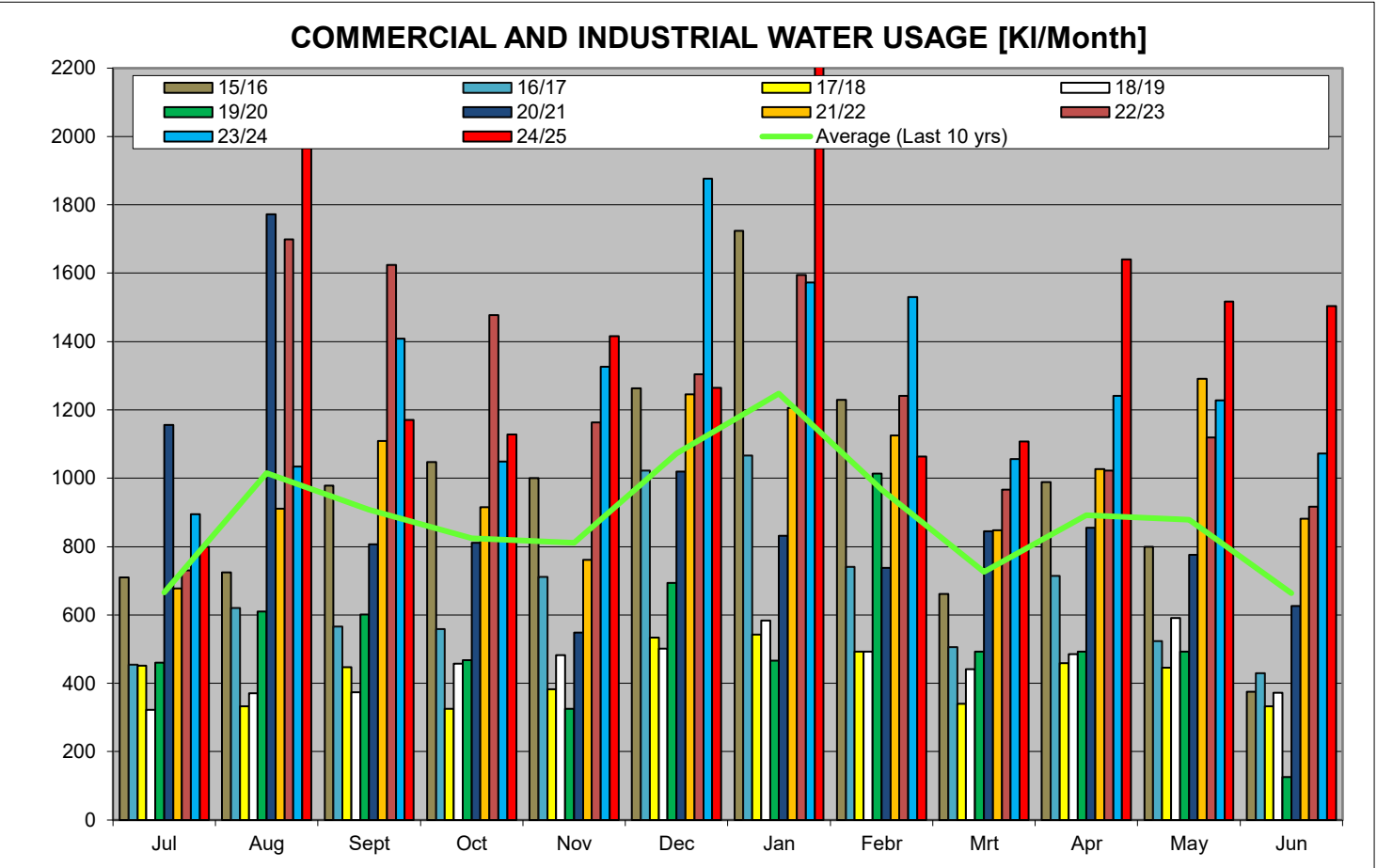
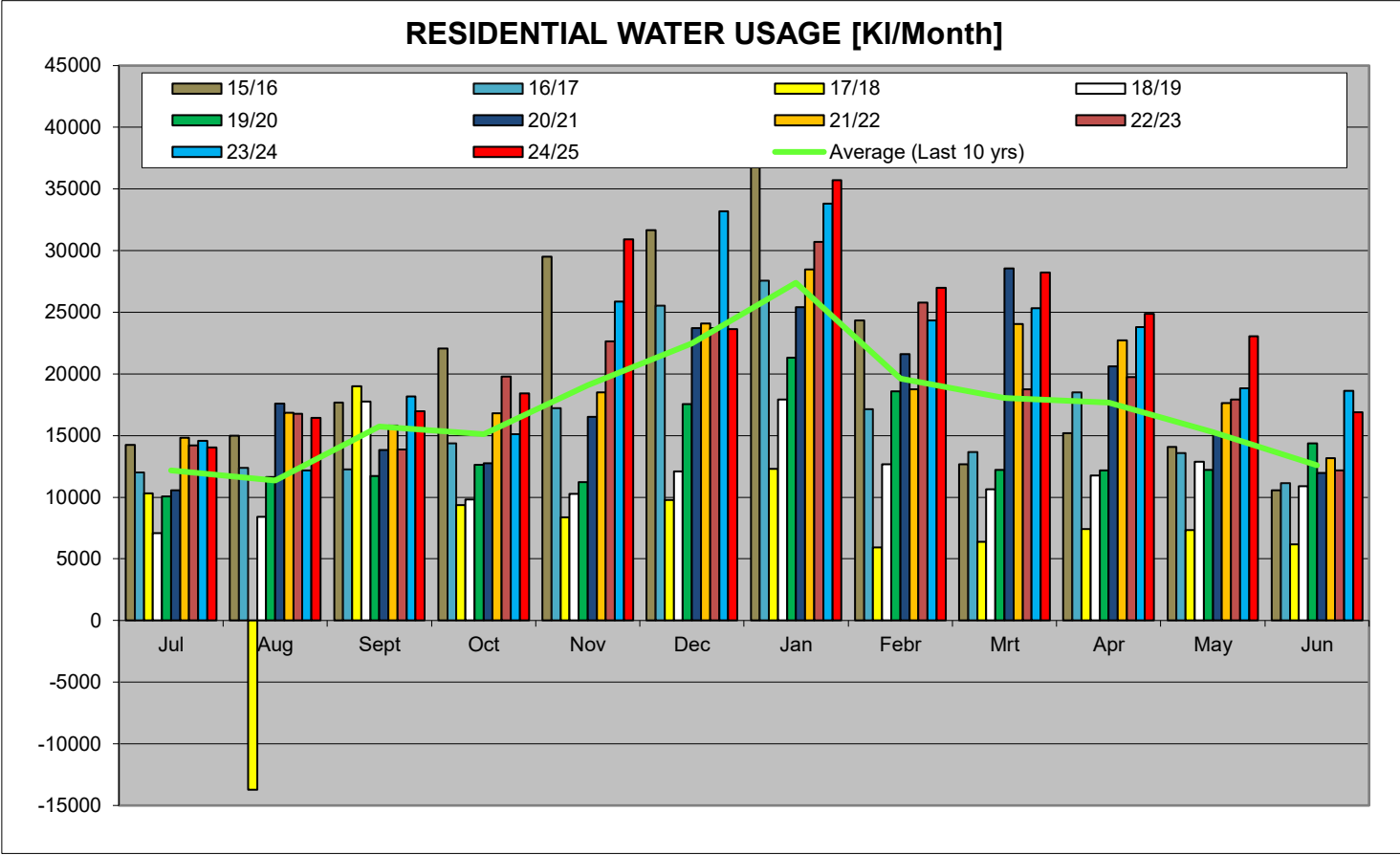


IWA WATER BALANCE FOR YZERFONTEIN DISTRIBUTION SYSTEM



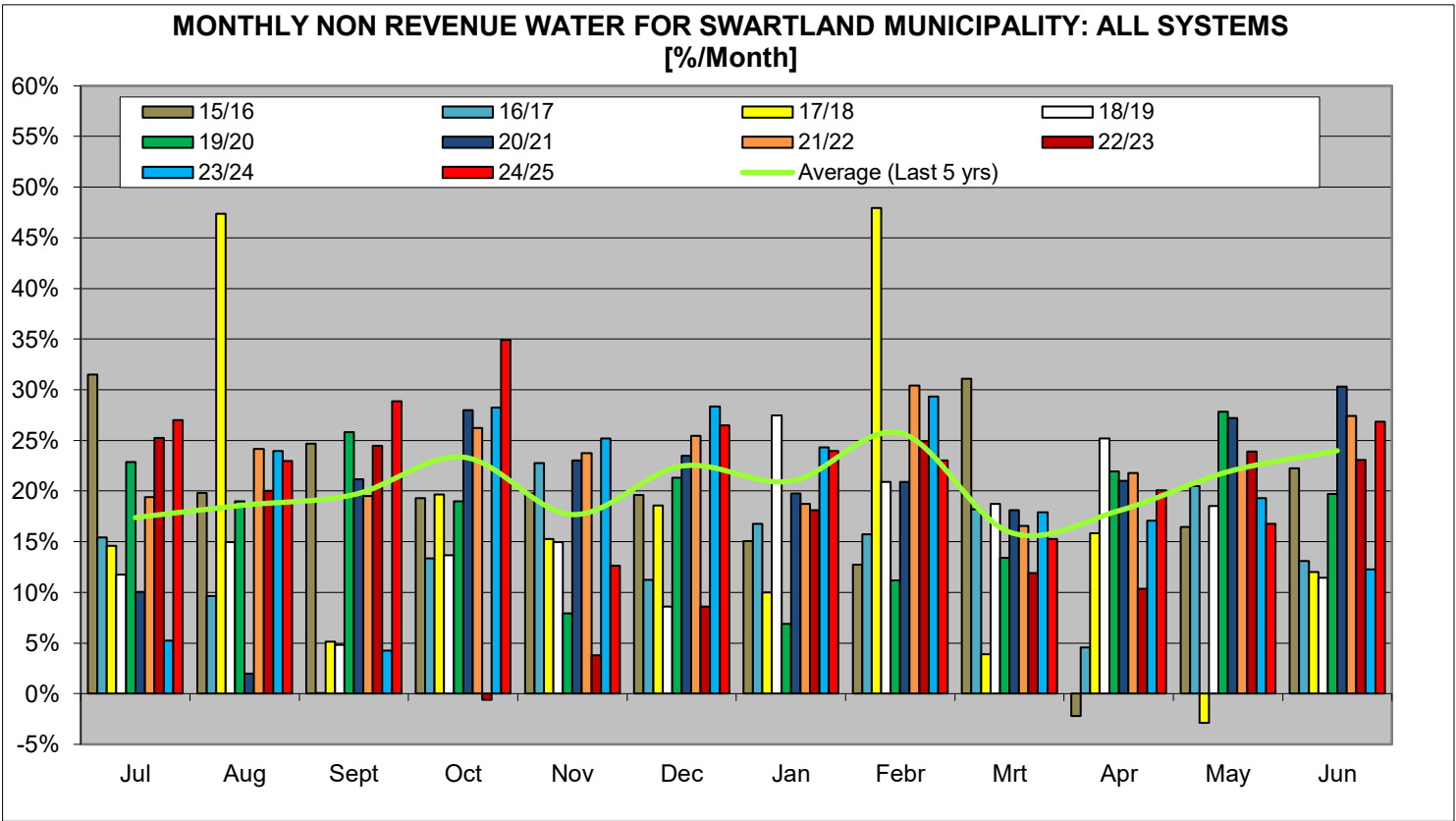
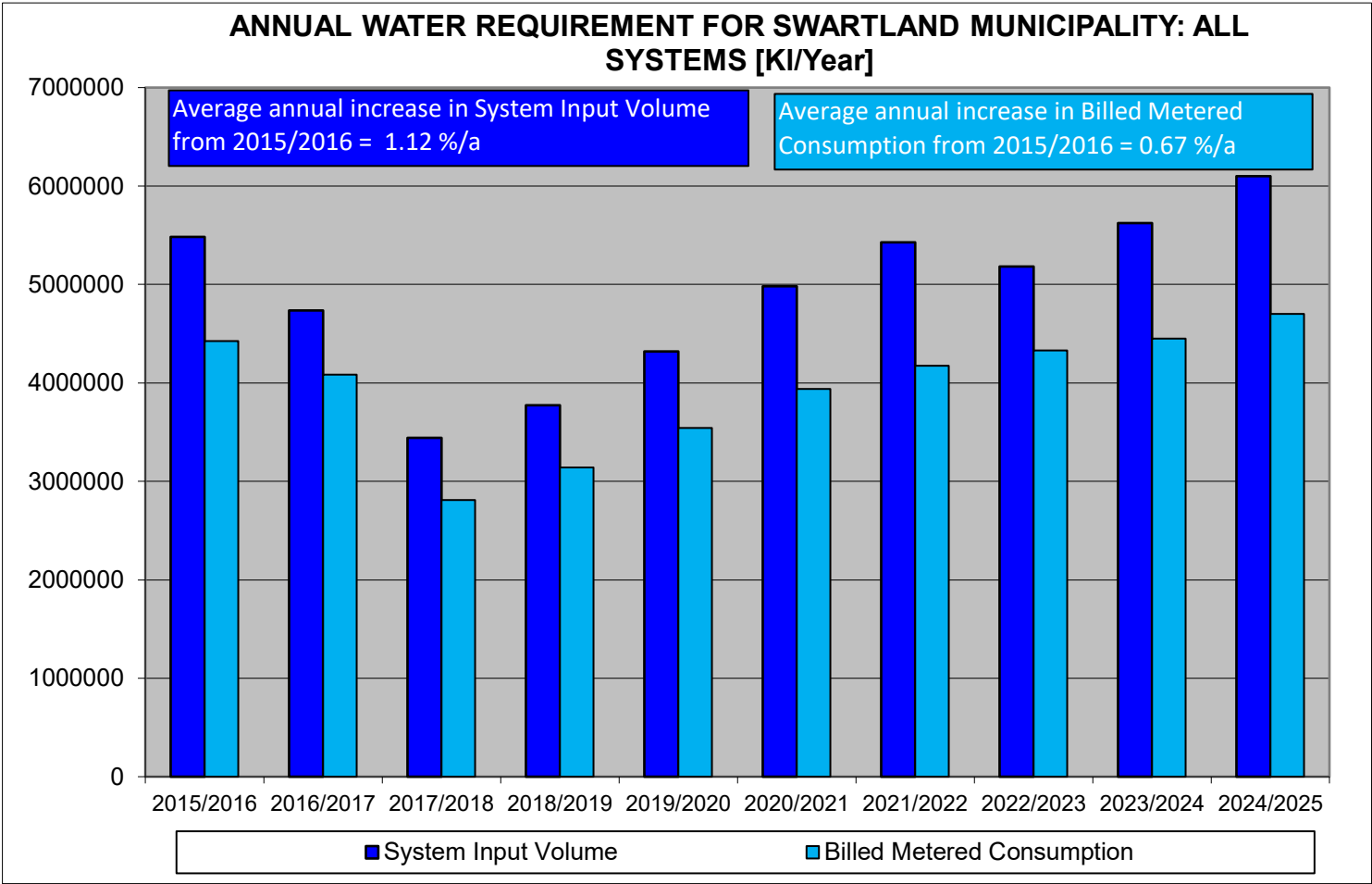
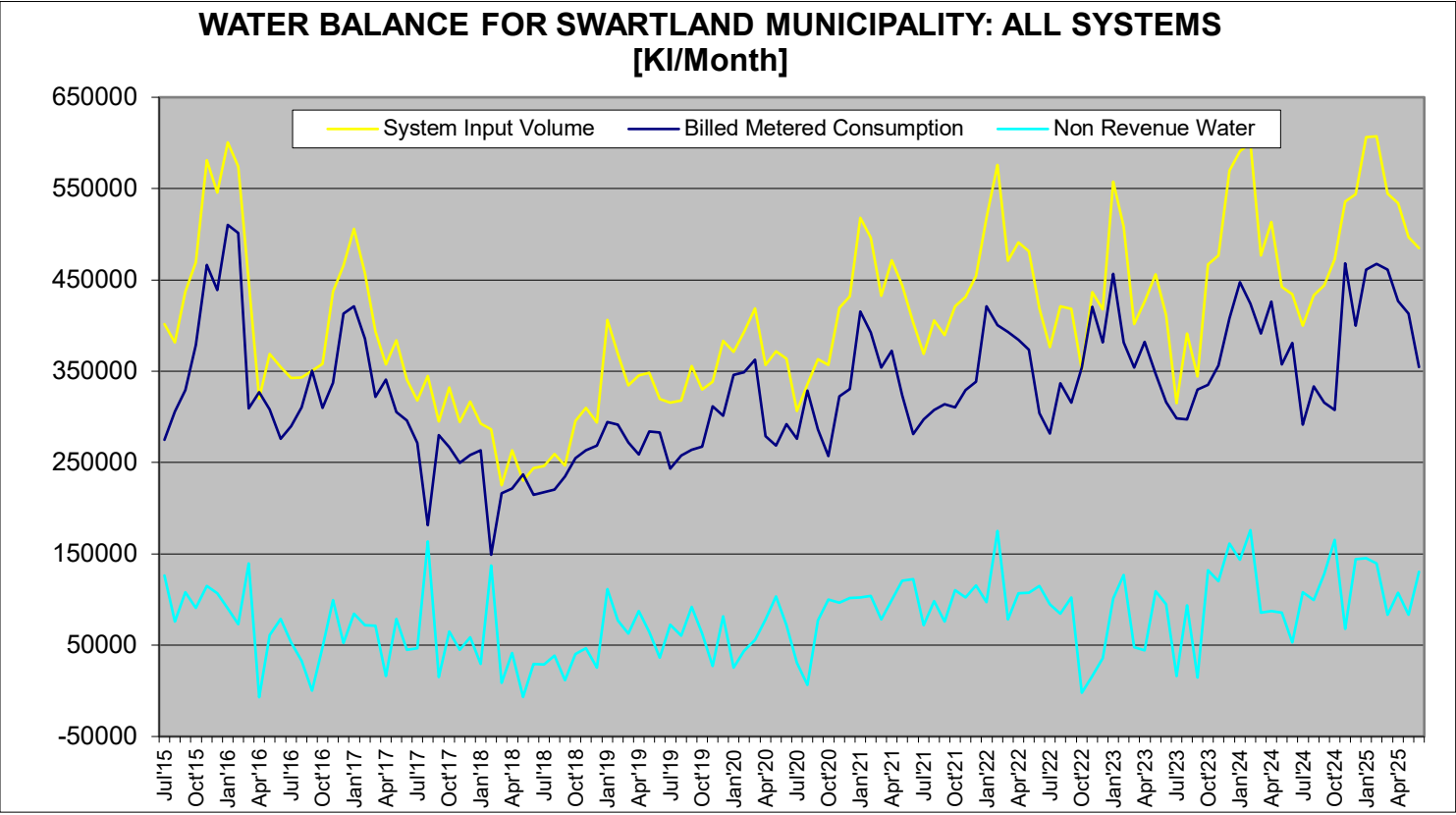


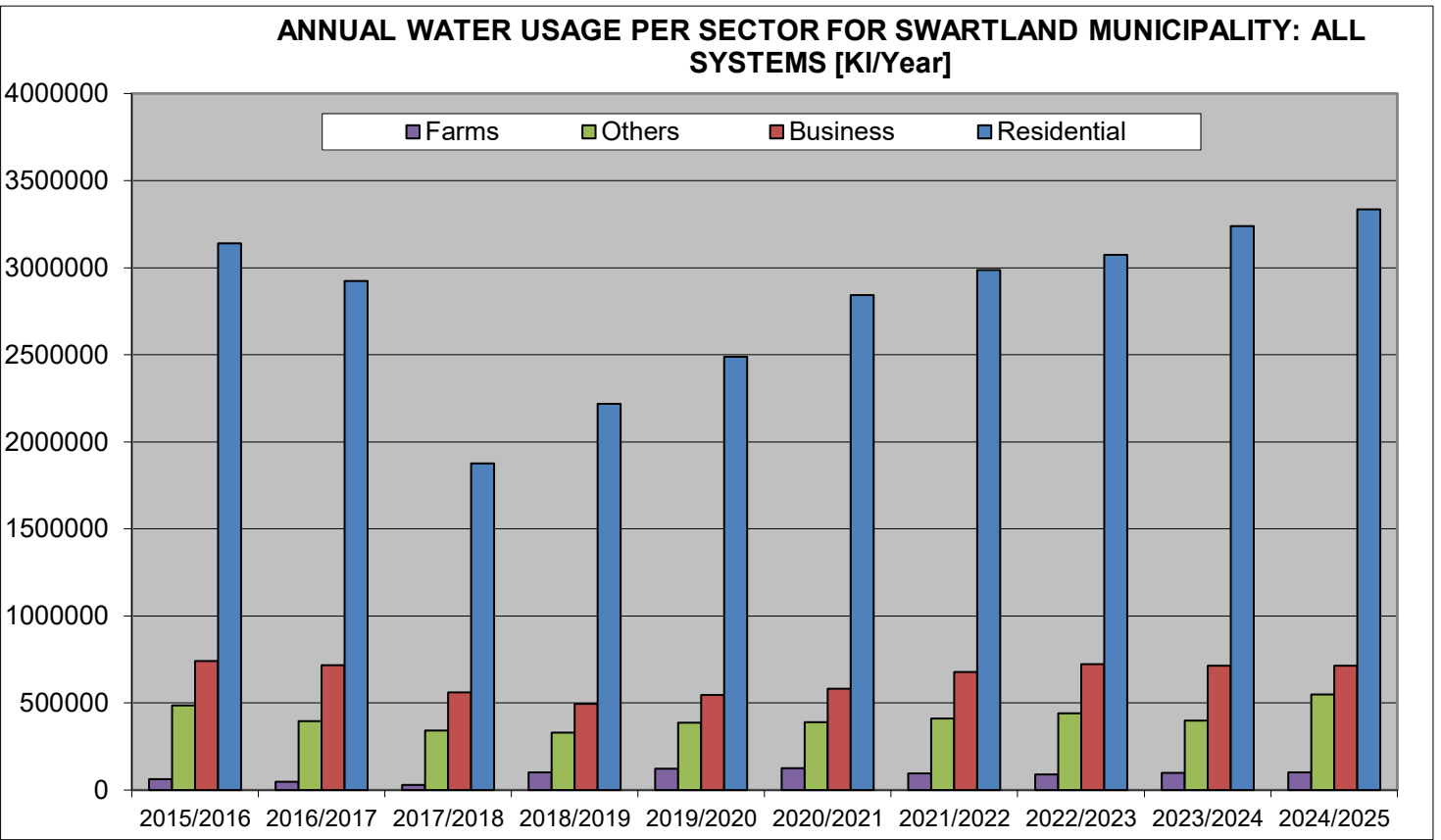
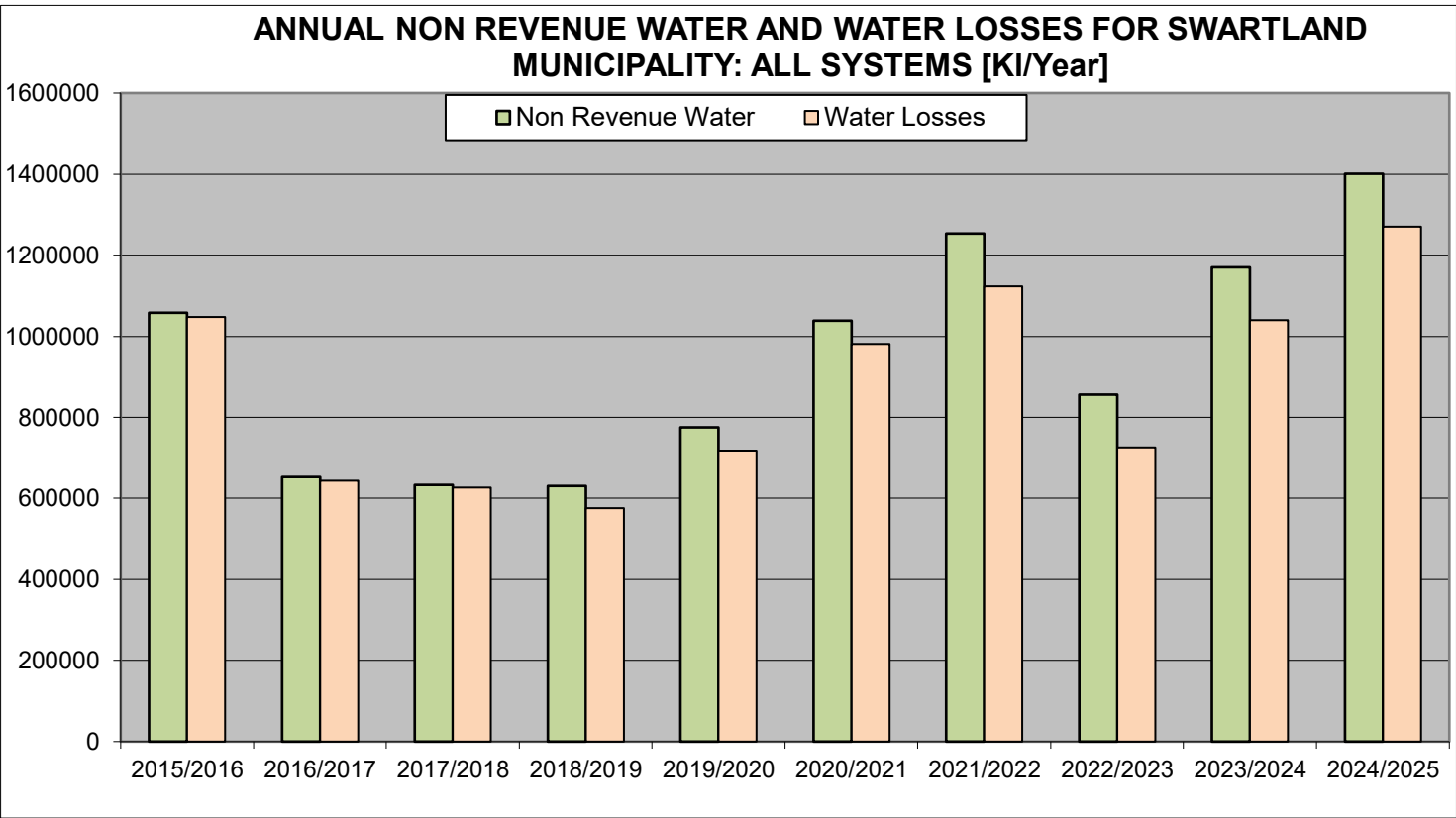
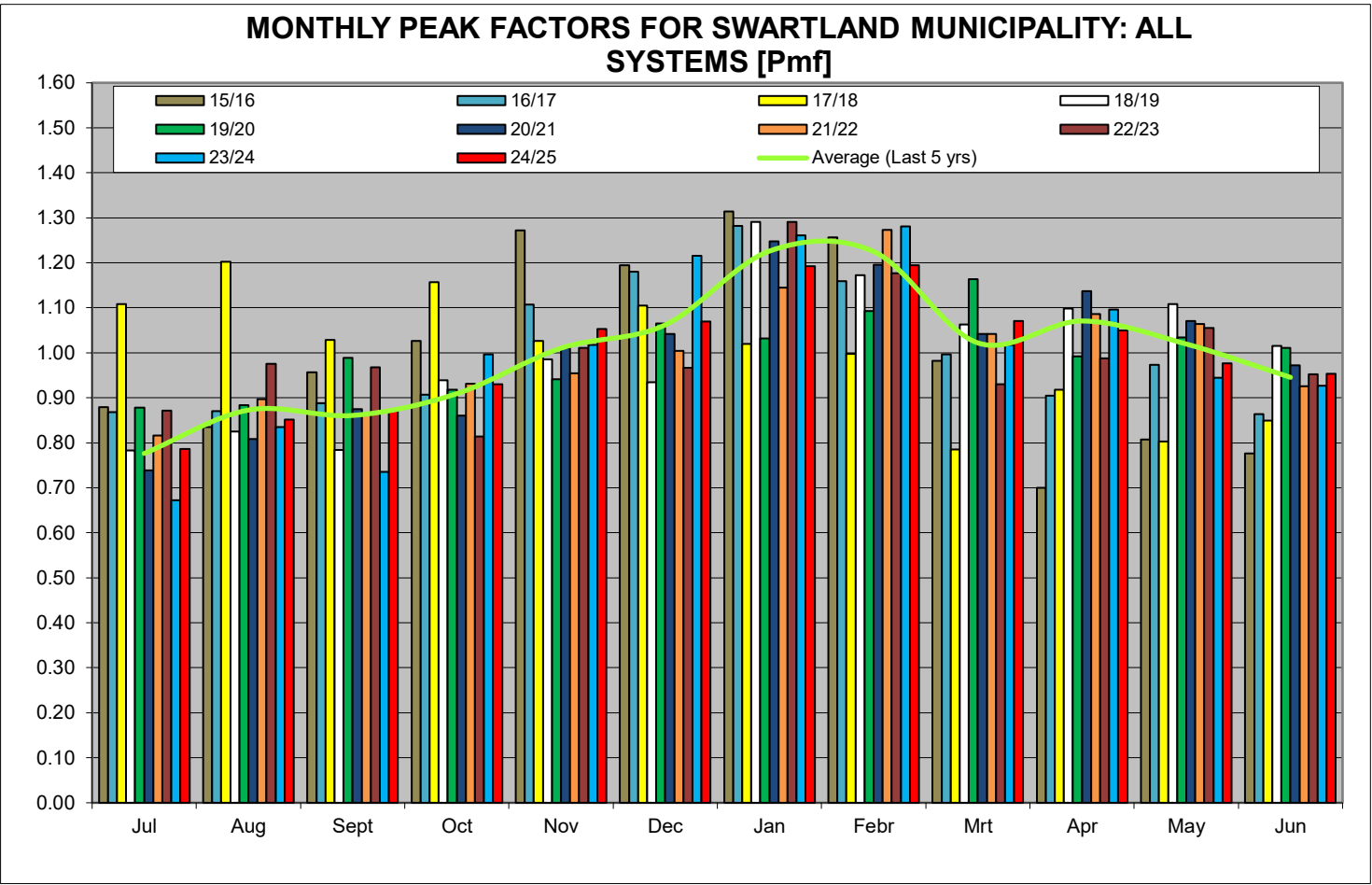
IWA WATER BALANCE FOR YZERFONTEIN DISTRIBUTION SYSTEM



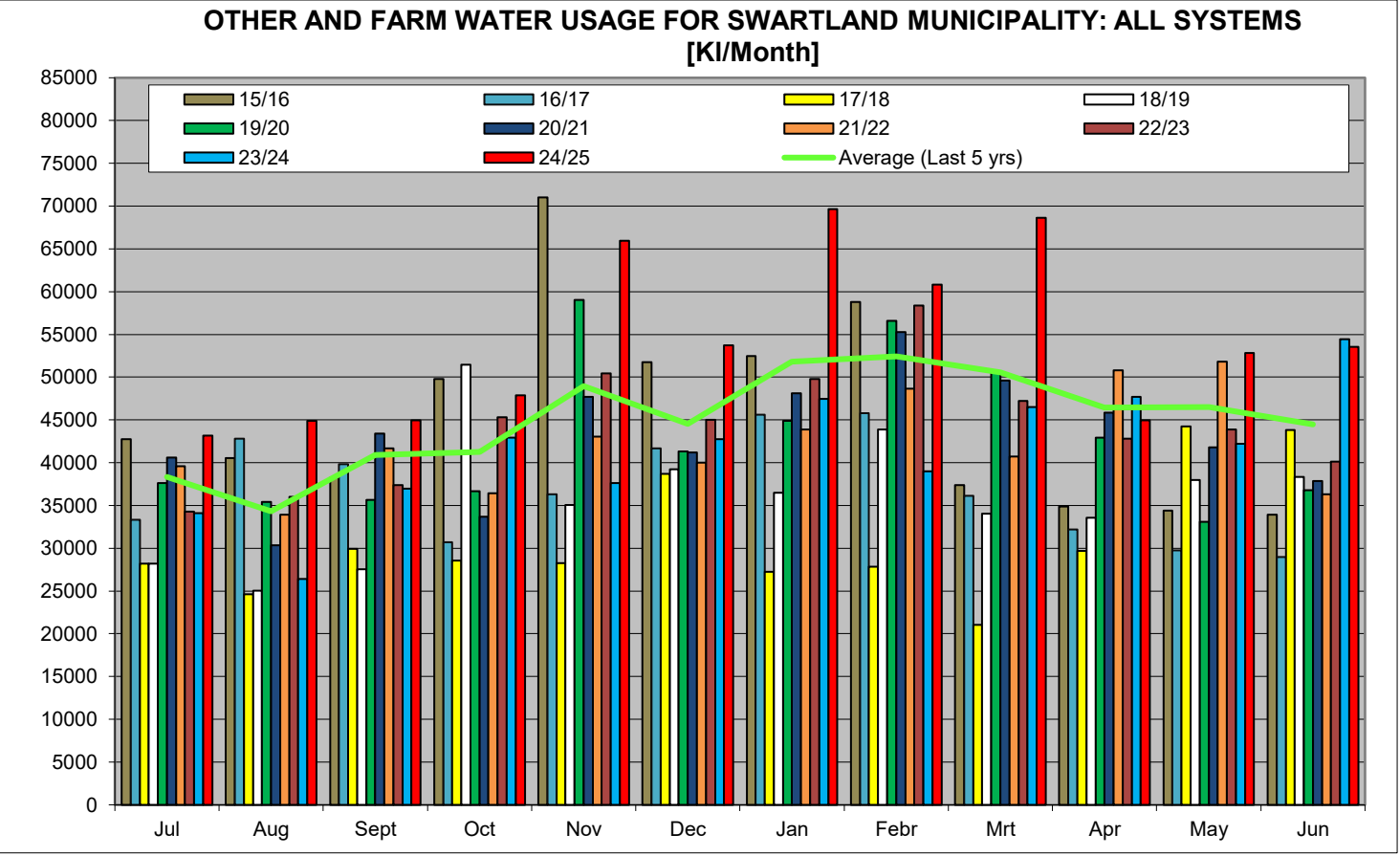
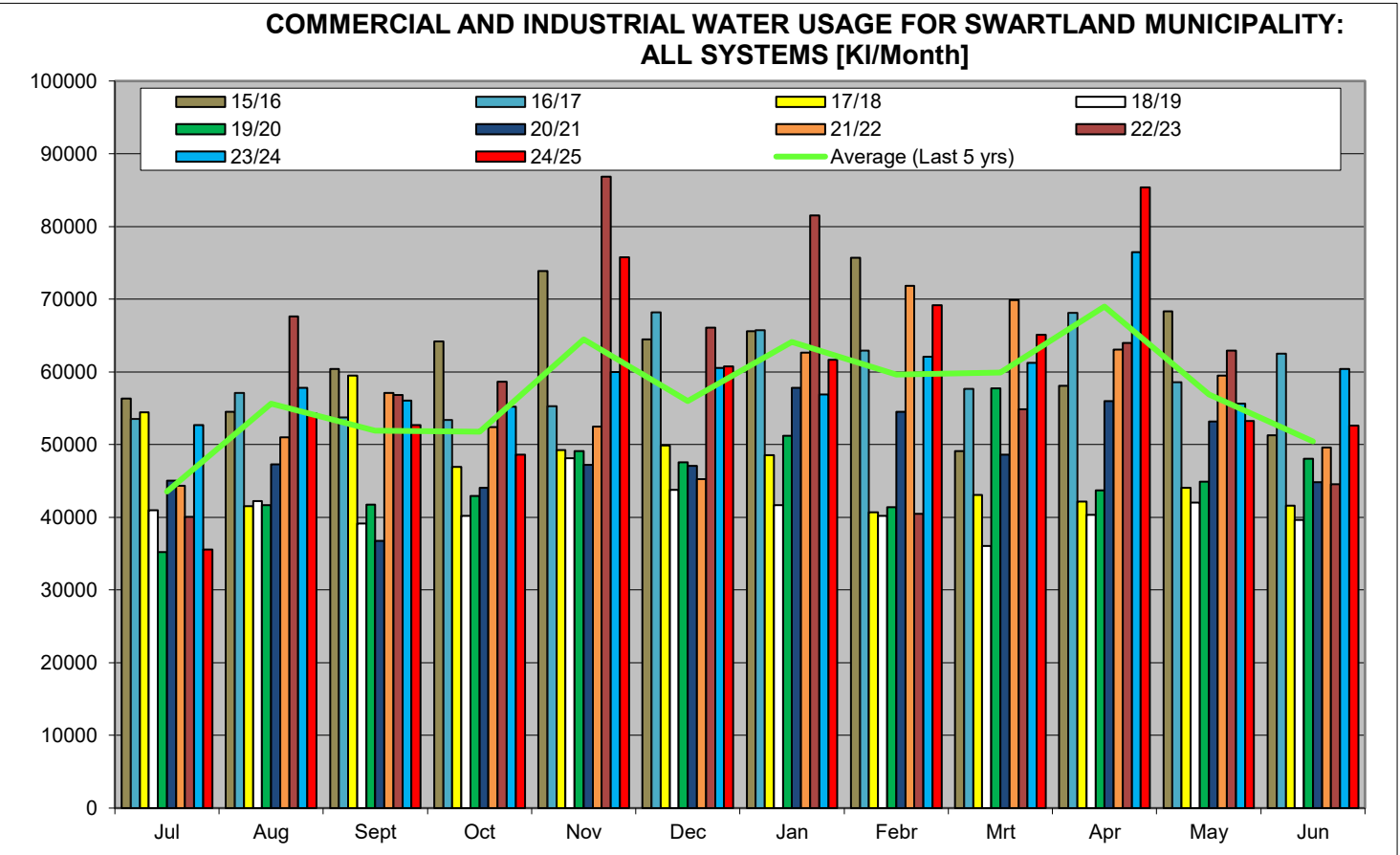
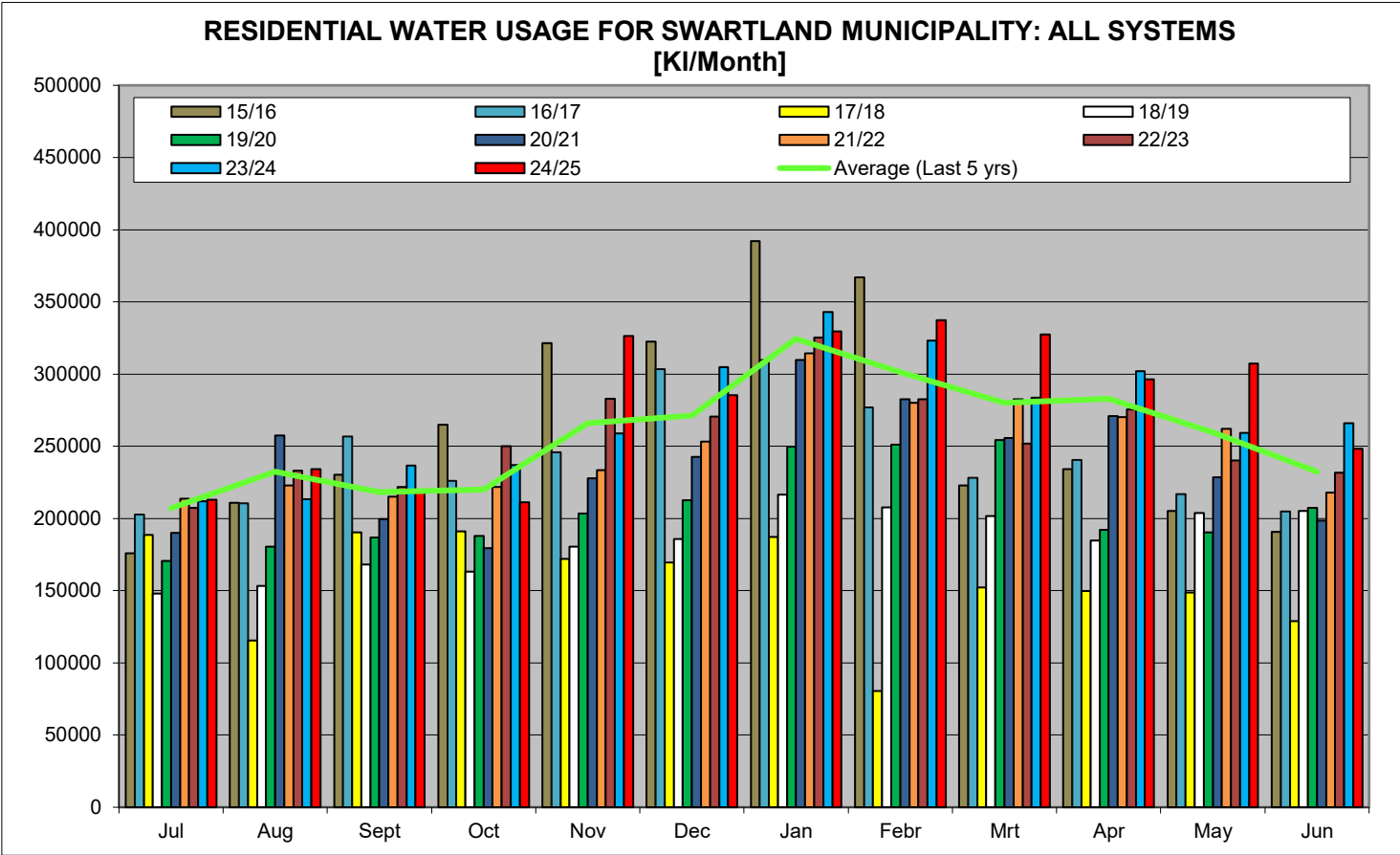


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   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------------------|------|----------------------|----------------|------|-------|----------------------------|-------------------------------|-------------|-------------|-------------------|------------|------------------------------|---------------------------------|---------------------|-------------------|-----------------------|----------------------------------|-----------------------------------|----------------------|----------------------|---------------------|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----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| Swartland Municipality: All Systems |      |                      |                |      |       |                            |                               |             |             |                   |            |                              |                                 |                     |                   |                       |                                  |                                   |                      |                      |                     |                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |   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   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                     |      | TREATED WATER SUPPLY |                |      |       |                            |                               |             |             |                   |            |                              |                                 |                     |                   |                       |                                  |                                   |                      |                      |                     |                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Month                               | Year | System Input Volume  |                |      |       | Revenue Water              |                               |             |             | Non Revenue Water |            |                              |                                 |                     |                   |                       |                                  |                                   |                      |                      |                     |                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                     |      | Boreholes            | Paardeberg Dam | WCMD | Total | Billed Metered Consumption | Billed Un-metered Consumption | Monthly NRW | Monthly NRW | Annual NRW        | Annual NRW | Unbilled Metered Consumption | Unbilled Un-metered Consumption | Apparent Losses     |                   |                       | Real Losses                      |                                   | Monthly Water Losses | Monthly Water Losses | Annual Water Losses | Annual Water Losses |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |   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   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                     |      |                      |                |      |       |                            |                               |             |             |                   |            |                              |                                 | Illegal Connections | Inaccurate Meters | Administrative Errors | Leaks, Reservoirs overflow, etc. |                                   |                      |                      |                     |                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |   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   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                     |      |                      |                |      |       |                            |                               |             |             |                   |            |                              |                                 |                     |                   |                       |                                  | Estimated Percentages (Variables) |                      |                      |                     |                     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |   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   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                     |      |                      |                |      |       |                            |                               |             |             |                   |            |                              |                                 |                     |                   |                       |                                  | 2%                                |                      |                      |                     |                     | 10%  | 5%   | 83%  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |   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   |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                     |      |                      |                |      |       |                            |                               |             |             |                   |            |                              |                                 |                     |                   |                       |                                  | [m³]                              |                      |                      |                     |                     | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] | [m³] |











### Rainfall and WWTWs flows

[illegible]



### Rainfall and WWTWs flows

[illegible]

WWTW was decommissioned and flow is diverted to the new Riebeeck Valley WWTW.

new Riebeek Valley WWTW was constructed

|                                                                              |       |        |    |   |
|------------------------------------------------------------------------------|-------|--------|----|---|
| WTW was decommissioned and flow is diverted to the new Riebeeck Valley WWTW. | 3,820 | 1,5281 | 49 | 1 |
|                                                                              | 5,241 | 2,0985 | 70 | 1 |

[illegible]



### MALMESBURY WWTW

|      | 2016/2017 |       | 2017/2018 |       | 2018/2019 |       |
|------|-----------|-------|-----------|-------|-----------|-------|
| Jul  | 150.188   | 1.13  | 131.908   | 1.11  | 138.904   | 1.12  |
| Aug  | 150.411   | 1.13  | 127.900   | 1.08  | 127.339   | 1.02  |
| Sept | 141.544   | 1.07  | 125.756   | 1.06  | 127.008   | 1.02  |
| Oct  | 129.438   | 0.98  | 124.418   | 1.05  | 121.415   | 0.97  |
| Nov  | 135.421   | 1.02  | 117.556   | 0.99  | 118.547   | 0.95  |
| Dec  | 118.134   | 0.89  | 108.062   | 0.91  | 104.604   | 0.84  |
| Jan  | 124.792   | 0.94  | 118.134   | 1.00  | 119.651   | 0.96  |
| Febr | 124.828   | 0.94  | 95.294    | 0.80  | 112.789   | 0.91  |
| Mrt  | 132.480   | 1.00  | 105.952   | 0.89  | 124.203   | 1.00  |
| Apr  | 120.827   | 0.91  | 109.892   | 0.93  | 122.534   | 0.98  |
| May  | 130.696   | 0.99  | 127.546   | 1.08  | 140.521   | 1.13  |
| Jun  | 131.720   | 0.99  | 130.870   | 1.10  | 136.911   | 1.10  |
|      | 132.540   | 12.00 | 118.607   | 12.00 | 124.536   | 12.00 |
|      | 1590.479  |       | 1423.288  |       | 1494.426  |       |

### MOORREESBURG WWTW

|      | 2016/2017 |       | 2017/2018 |       | 2018/2019 |       |
|------|-----------|-------|-----------|-------|-----------|-------|
| Jul  | 31.745    | 1.01  | 29.137    | 1.06  | 28.201    | 1.00  |
| Aug  | 38.248    | 1.22  | 28.560    | 1.04  | 27.321    | 0.97  |
| Sept | 37.784    | 1.20  | 25.750    | 0.93  | 30.577    | 1.09  |
| Oct  | 31.684    | 1.01  | 28.626    | 1.04  | 31.043    | 1.10  |
| Nov  | 27.732    | 0.88  | 30.478    | 1.11  | 30.101    | 1.07  |
| Dec  | 31.804    | 1.01  | 28.285    | 1.03  | 23.567    | 0.84  |
| Jan  | 34.086    | 1.09  | 25.374    | 0.92  | 27.584    | 0.98  |
| Febr | 28.012    | 0.89  | 24.011    | 0.87  | 24.831    | 0.88  |
| Mrt  | 25.317    | 0.81  | 24.622    | 0.89  | 26.717    | 0.95  |
| Apr  | 26.614    | 0.85  | 24.669    | 0.89  | 26.454    | 0.94  |
| May  | 31.779    | 1.01  | 30.705    | 1.11  | 30.224    | 1.07  |
| Jun  | 31.914    | 1.02  | 30.732    | 1.11  | 30.933    | 1.10  |
|      | 31.393    | 12.00 | 27.579    | 12.00 | 28.129    | 12.00 |
|      | 376.719   |       | 330.949   |       | 337.553   |       |

| 2019/2020 |       | 2020/2021 |       | 2021/2022 |       | 2022/2023 |      |
|-----------|-------|-----------|-------|-----------|-------|-----------|------|
| 150.541   | 1.02  | 173.602   | 1.08  | 194.937   | 1.15  | 158.91    | 0.90 |
| 150.838   | 1.03  | 171.089   | 1.06  | 190.657   | 1.13  | 191.74    | 1.09 |
| 139.610   | 0.95  | 151.450   | 0.94  | 180.957   | 1.07  | 164.31    | 0.93 |
| 146.139   | 0.99  | 154.821   | 0.96  | 171.611   | 1.02  | 182.70    | 1.03 |
| 138.228   | 0.94  | 146.372   | 0.91  | 168.561   | 1.00  | 176.22    | 1.00 |
| 136.160   | 0.93  | 164.906   | 1.02  | 165.840   | 0.98  | 175.99    | 1.00 |
| 149.211   | 1.01  | 150.628   | 0.94  | 164.493   | 0.97  | 177.75    | 1.01 |
| 143.761   | 0.98  | 150.575   | 0.93  | 157.162   | 0.93  | 177.64    | 1.01 |
| 154.731   | 1.05  | 171.052   | 1.06  | 160.186   | 0.95  | 160.10    | 0.91 |
| 137.772   | 0.94  | 159.349   | 0.99  | 149.652   | 0.89  | 155.34    | 0.88 |
| 154.956   | 1.05  | 162.763   | 1.01  | 159.283   | 0.94  | 181.07    | 1.03 |
| 162.141   | 1.10  | 175.919   | 1.09  | 164.933   | 0.98  | 217.68    | 1.23 |
| 147.007   | 12.00 | 161.044   | 12.00 | 169.023   | 12.00 | 176.620   |      |
| 1764.088  |       | 1932.526  |       | 2028.272  |       | 2119.441  |      |
|           |       |           |       |           |       | 12.000    |      |

| 2019/2020 |       | 2020/2021 |       | 2021/2022 |       | 2022/2023 |      |
|-----------|-------|-----------|-------|-----------|-------|-----------|------|
| 32.278    | 1.10  | 32.500    | 0.97  | 41.233    | 1.24  | 39.79     | 1.06 |
| 34.719    | 1.18  | 35.421    | 1.06  | 39.444    | 1.18  | 40.32     | 1.07 |
| 35.577    | 1.21  | 33.798    | 1.01  | 39.251    | 1.18  | 41.26     | 1.10 |
| 34.191    | 1.17  | 32.481    | 0.97  | 34.191    | 1.03  | 42.46     | 1.13 |
| 28.114    | 0.96  | 30.172    | 0.90  | 28.114    | 0.84  | 42.03     | 1.12 |
| 26.525    | 0.91  | 31.378    | 0.94  | 33.555    | 1.01  | 38.26     | 1.02 |
| 27.333    | 0.93  | 30.122    | 0.90  | 26.061    | 0.78  | 31.01     | 0.83 |
| 22.200    | 0.76  | 31.957    | 0.96  | 27.366    | 0.82  | 26.89     | 0.72 |
| 25.122    | 0.86  | 30.293    | 0.91  | 22.223    | 0.67  | 28.94     | 0.77 |
| 24.885    | 0.85  | 27.393    | 0.82  | 32.241    | 0.97  | 37.02     | 0.99 |
| 29.706    | 1.01  | 37.599    | 1.13  | 33.255    | 1.00  | 33.79     | 0.90 |
| 30.936    | 1.06  | 47.128    | 1.41  | 42.511    | 1.28  | 48.66     | 1.30 |
| 29.299    | 12.00 | 33.354    | 12.00 | 33.287    | 12.00 | 37.535    |      |
| 351.586   |       | 400.243   |       | 399.445   |       | 450.414   |      |
|           |       |           |       |           |       | 12.000    |      |

| 2023/2024 |        | 2024/2025 |        | Average over five years |       |
|-----------|--------|-----------|--------|-------------------------|-------|
| 196.36    | 1.20   | 216.83    | 1.27   | 188.128                 | 1.12  |
| 194.70    | 1.19   | 218.10    | 1.28   | 193.257                 | 1.15  |
| 186.08    | 1.14   | 177.73    | 1.04   | 172.105                 | 1.02  |
| 177.45    | 1.08   | 171.38    | 1.00   | 171.592                 | 1.02  |
| 161.52    | 0.99   | 157.05    | 0.92   | 161.943                 | 0.96  |
| 150.86    | 0.92   | 166.96    | 0.98   | 164.909                 | 0.98  |
| 152.91    | 0.93   | 159.77    | 0.94   | 161.109                 | 0.96  |
| 143.13    | 0.87   | 153.96    | 0.90   | 156.494                 | 0.93  |
| 149.41    | 0.91   | 164.08    | 0.96   | 160.966                 | 0.96  |
| 132.62    | 0.81   | 147.42    | 0.86   | 148.875                 | 0.88  |
| 153.52    | 0.94   | 162.08    | 0.95   | 163.742                 | 0.97  |
| 168.65    | 1.03   | 152.03    | 0.89   | 175.842                 | 1.05  |
| 163.933   |        | 170.614   |        | 168.247                 | 12.00 |
| 1967.200  | 12.000 | 2047.373  | 12.000 |                         |       |

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Sept  
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| 2023/2024 |        | 2024/2025 |        | Average over five years |       |
|-----------|--------|-----------|--------|-------------------------|-------|
| 41.65     | 1.04   | 60.88     | 1.59   | 43.210                  | 1.18  |
| 39.66     | 0.99   | 65.12     | 1.70   | 43.995                  | 1.20  |
| 45.80     | 1.14   | 35.88     | 0.94   | 39.196                  | 1.07  |
| 46.84     | 1.17   | 32.81     | 0.86   | 37.757                  | 1.03  |
| 33.28     | 0.83   | 32.18     | 0.84   | 33.155                  | 0.91  |
| 37.13     | 0.93   | 31.68     | 0.83   | 34.400                  | 0.94  |
| 36.40     | 0.91   | 36.00     | 0.94   | 31.918                  | 0.87  |
| 36.92     | 0.92   | 32.59     | 0.85   | 31.143                  | 0.85  |
| 40.13     | 1.00   | 39.49     | 1.03   | 32.217                  | 0.88  |
| 38.82     | 0.97   | 26.21     | 0.68   | 32.336                  | 0.89  |
| 39.97     | 1.00   | 27.49     | 0.72   | 34.421                  | 0.94  |
| 43.98     | 1.10   | 40.13     | 1.05   | 44.481                  | 1.22  |
| 40.048    |        | 38.372    |        | 36.519                  | 12.00 |
| 480.578   | 12.000 | 460.467   | 12.000 |                         |       |

Jul  
Aug  
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## DARLING WWTW

| 2016/2017 |       | 2017/2018 |       | 2018/2019 |       | 2019/2020 |       |
|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 30.526    | 1.08  | 28.177    | 0.95  | 35.192    | 1.10  | 35.169    | 1.05  |
| 34.949    | 1.24  | 35.499    | 1.19  | 34.816    | 1.09  | 34.777    | 1.04  |
| 33.200    | 1.17  | 34.122    | 1.15  | 33.008    | 1.03  | 37.684    | 1.13  |
| 29.950    | 1.06  | 35.132    | 1.18  | 38.983    | 1.22  | 35.712    | 1.07  |
| 26.332    | 0.93  | 37.460    | 1.26  | 37.108    | 1.16  | 32.826    | 0.98  |
| 29.849    | 1.06  | 36.440    | 1.22  | 36.950    | 1.16  | 35.407    | 1.06  |
| 26.309    | 0.93  | 24.419    | 0.82  | 25.364    | 0.79  | 31.501    | 0.94  |
| 24.077    | 0.85  | 21.041    | 0.71  | 22.301    | 0.70  | 24.300    | 0.73  |
| 29.695    | 1.05  | 29.940    | 1.01  | 29.818    | 0.93  | 27.616    | 0.83  |
| 26.670    | 0.94  | 22.427    | 0.75  | 24.549    | 0.77  | 27.806    | 0.83  |
| 22.154    | 0.78  | 23.642    | 0.79  | 30.464    | 0.95  | 34.677    | 1.04  |
| 25.627    | 0.91  | 29.015    | 0.97  | 35.055    | 1.10  | 44.086    | 1.32  |
| 28.278    | 12.00 | 29.776    | 12.00 | 31.967    | 12.00 | 33.463    | 12.00 |
| 339.337   |       | 357.313   |       | 383.607   |       | 401.561   |       |

## RIEBEEK VALLEY WWTW

| 2016/2017 |       | 2017/2018 |       | 2018/2019 |       | 2019/2020 |       |
|-----------|-------|-----------|-------|-----------|-------|-----------|-------|
| 36.333    | 1.58  | 22.794    | 1.15  | 37.384    | 1.62  | 30.748    | 1.35  |
| 37.307    | 1.62  | 23.249    | 1.18  | 28.869    | 1.25  | 29.719    | 1.30  |
| 26.387    | 1.15  | 19.862    | 1.00  | 33.681    | 1.46  | 18.796    | 0.82  |
| 21.357    | 0.93  | 19.583    | 0.99  | 20.308    | 0.88  | 20.130    | 0.88  |
| 19.522    | 0.85  | 17.905    | 0.91  | 18.172    | 0.79  | 20.088    | 0.88  |
| 17.197    | 0.75  | 16.904    | 0.86  | 16.642    | 0.72  | 21.057    | 0.92  |
| 18.347    | 0.80  | 17.197    | 0.87  | 17.772    | 0.77  | 19.603    | 0.86  |
| 17.895    | 0.78  | 14.229    | 0.72  | 17.968    | 0.78  | 20.770    | 0.91  |
| 19.613    | 0.85  | 16.350    | 0.83  | 19.809    | 0.86  | 22.770    | 1.00  |
| 19.095    | 0.83  | 17.070    | 0.86  | 19.869    | 0.86  | 21.108    | 0.92  |
| 20.393    | 0.89  | 21.003    | 1.06  | 21.872    | 0.95  | 21.336    | 0.93  |
| 22.297    | 0.97  | 31.071    | 1.57  | 25.050    | 1.08  | 27.843    | 1.22  |
| 22.979    | 12.00 | 19.768    | 12.00 | 23.116    | 12.00 | 22.831    | 12.00 |
| 275.743   |       | 237.217   |       | 277.396   |       | 273.968   |       |

| 2020/2021 |       | 2021/2022 |       | 2022/2023 |      | 2023/2024 |      |
|-----------|-------|-----------|-------|-----------|------|-----------|------|
| 43.055    | 1.14  | 41.122    | 1.07  | 43.51     | 1.09 | 41.40     | 1.09 |
| 42.044    | 1.11  | 40.155    | 1.05  | 41.64     | 1.05 | 42.58     | 1.12 |
| 38.544    | 1.02  | 39.255    | 1.02  | 42.52     | 1.07 | 41.63     | 1.10 |
| 37.522    | 0.99  | 35.712    | 0.93  | 43.26     | 1.09 | 43.52     | 1.15 |
| 44.545    | 1.18  | 32.826    | 0.86  | 36.22     | 0.91 | 41.11     | 1.08 |
| 45.733    | 1.21  | 44.744    | 1.17  | 39.77     | 1.00 | 38.76     | 1.02 |
| 32.500    | 0.86  | 38.200    | 1.00  | 35.32     | 0.89 | 37.16     | 0.98 |
| 33.655    | 0.89  | 33.355    | 0.87  | 36.50     | 0.92 | 37.33     | 0.99 |
| 37.725    | 1.00  | 37.365    | 0.97  | 35.78     | 0.90 | 38.41     | 1.01 |
| 34.211    | 0.91  | 35.279    | 0.92  | 39.39     | 0.99 | 29.98     | 0.79 |
| 36.522    | 0.97  | 39.690    | 1.04  | 39.93     | 1.00 | 32.08     | 0.85 |
| 26.842    | 0.71  | 42.398    | 1.11  | 43.32     | 1.09 | 30.80     | 0.81 |
| 37.742    | 12.00 | 38.342    | 12.00 | 39.762    |      | 37.897    |      |
| 452.898   |       | 460.101   |       | 477.148   |      | 454.765   |      |
|           |       |           |       | 12.000    |      | 12.000    |      |

| 2020/2021 |       | 2021/2022 |       | 2022/2023 |      | 2023/2024 |      |
|-----------|-------|-----------|-------|-----------|------|-----------|------|
| 29.208    | 1.14  | 28.310    | 1.13  | 25.31     | 1.04 | 41.44     | 1.41 |
| 38.350    | 1.50  | 34.492    | 1.37  | 31.35     | 1.29 | 44.77     | 1.53 |
| 22.552    | 0.88  | 29.251    | 1.16  | 27.31     | 1.12 | 39.24     | 1.34 |
| 24.398    | 0.95  | 23.514    | 0.93  | 21.54     | 0.88 | 23.74     | 0.81 |
| 25.172    | 0.98  | 24.079    | 0.96  | 18.00     | 0.74 | 21.85     | 0.74 |
| 23.657    | 0.92  | 26.046    | 1.04  | 24.40     | 1.00 | 24.42     | 0.83 |
| 22.376    | 0.87  | 23.820    | 0.95  | 24.53     | 1.01 | 27.48     | 0.94 |
| 20.941    | 0.82  | 21.282    | 0.85  | 22.94     | 0.94 | 24.74     | 0.84 |
| 22.725    | 0.89  | 22.936    | 0.91  | 27.27     | 1.12 | 24.90     | 0.85 |
| 22.554    | 0.88  | 21.136    | 0.84  | 21.34     | 0.88 | 22.86     | 0.78 |
| 27.393    | 1.07  | 21.921    | 0.87  | 22.05     | 0.91 | 24.08     | 0.82 |
| 28.310    | 1.10  | 25.060    | 1.00  | 26.11     | 1.07 | 32.42     | 1.11 |
| 25.636    | 12.00 | 25.154    | 12.00 | 24.345    |      | 29.329    |      |
| 307.636   |       | 301.847   |       | 292.143   |      | 351.948   |      |
|           |       |           |       | 12.000    |      | 12.000    |      |

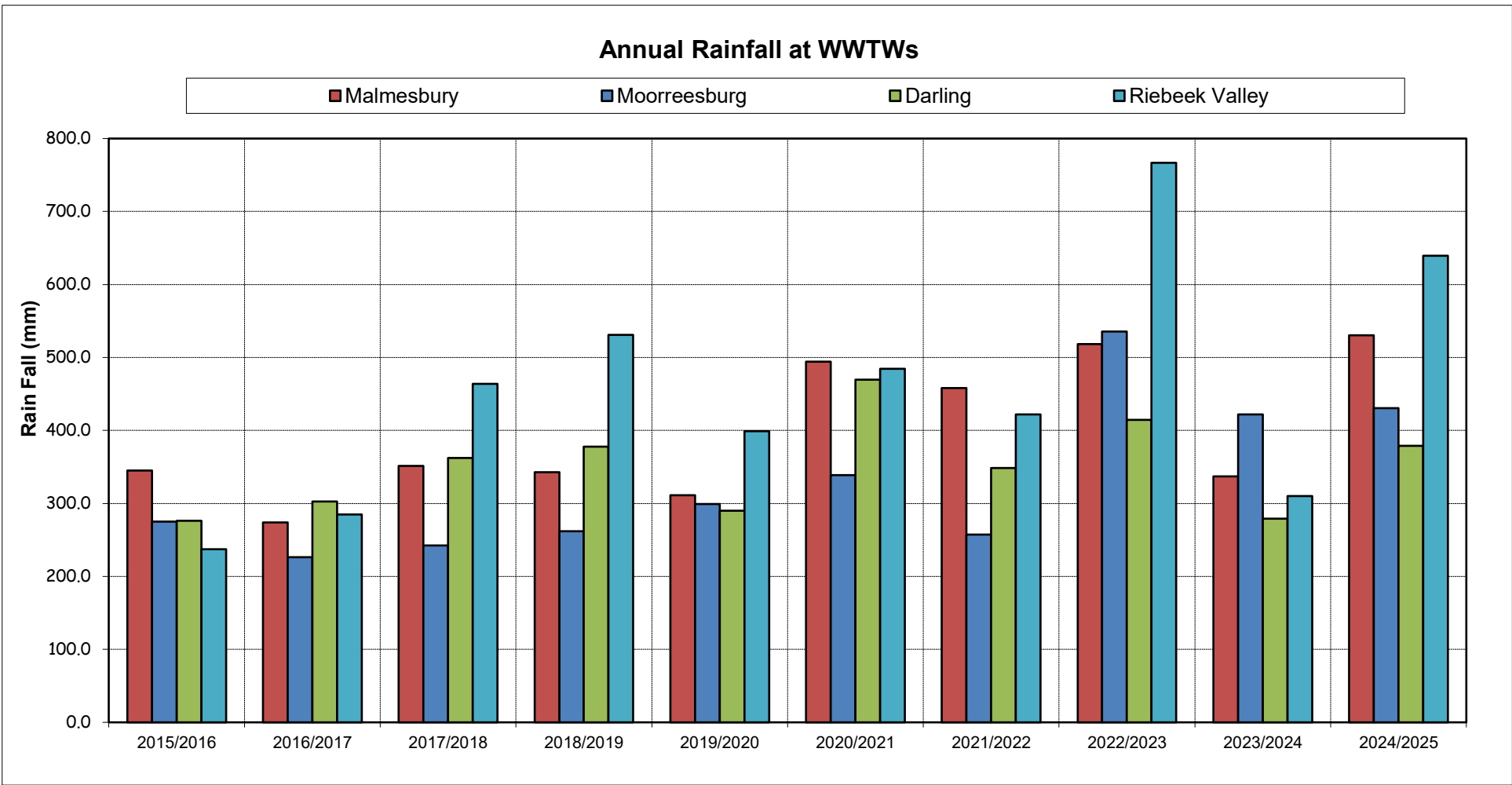
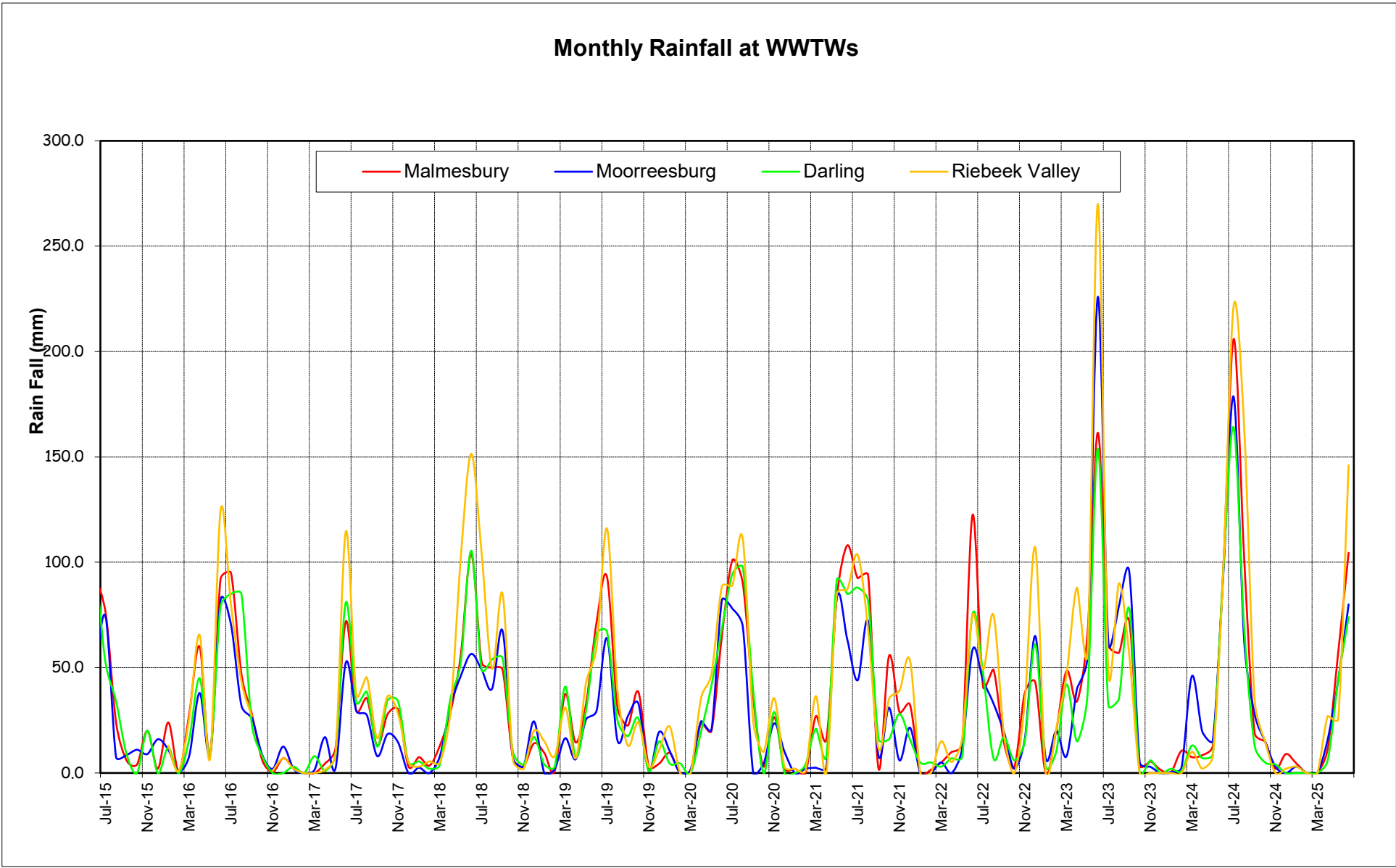


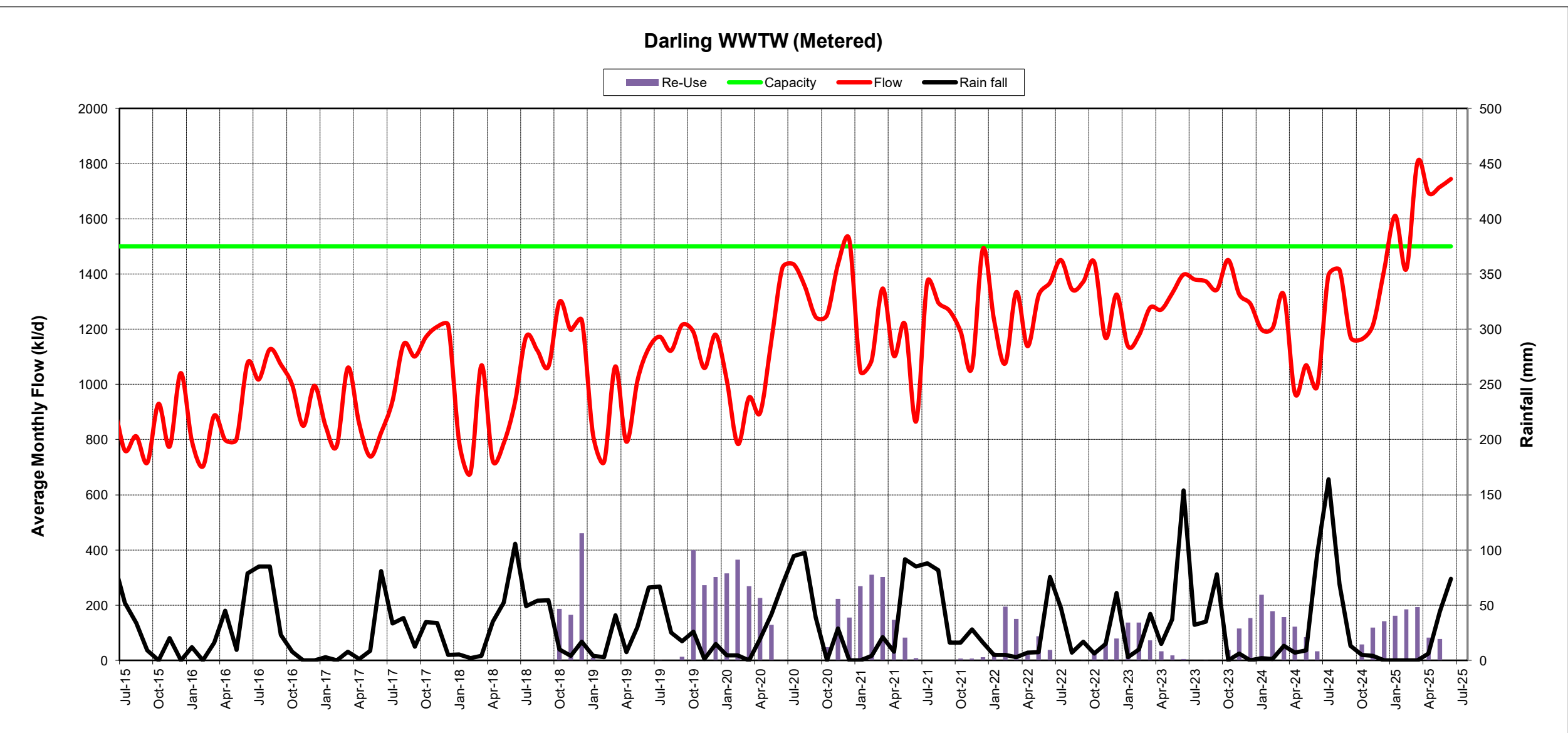
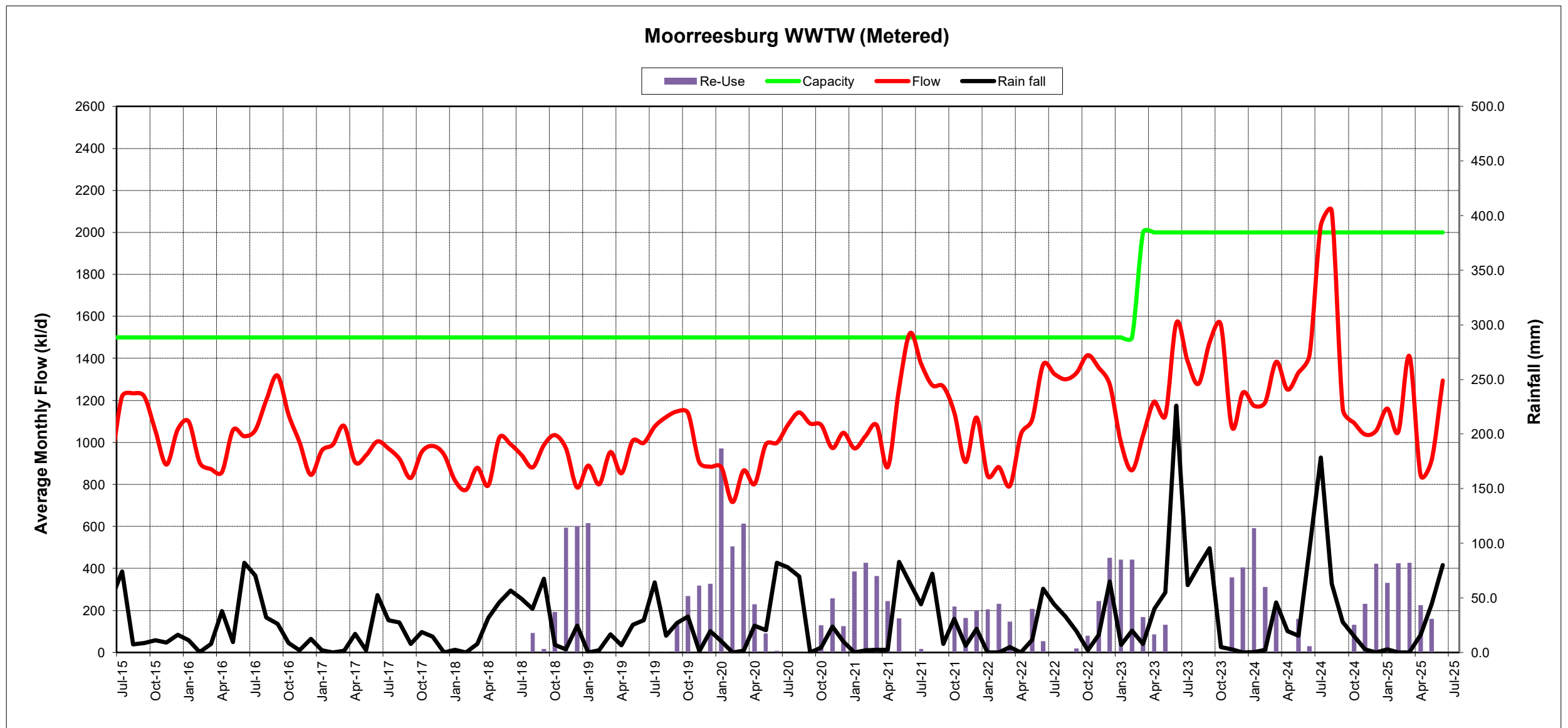
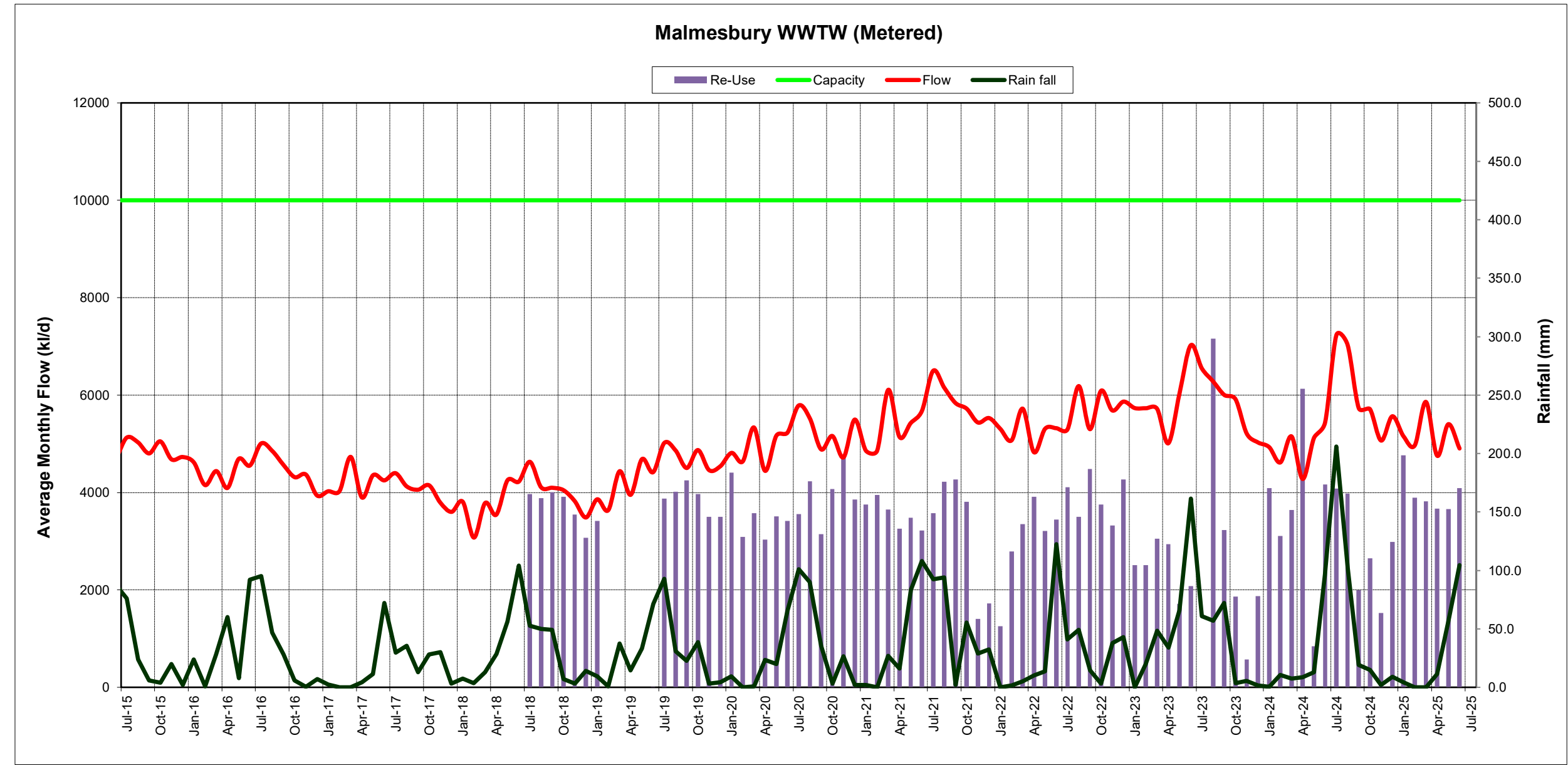
| 2024/2025 |      | Average over five years |       |
|-----------|------|-------------------------|-------|
| 41.82     | 0.93 | 42.181                  | 1.06  |
| 43.86     | 0.98 | 42.056                  | 1.06  |
| 36.29     | 0.81 | 39.648                  | 1.00  |
| 34.91     | 0.78 | 38.984                  | 0.98  |
| 37.66     | 0.84 | 38.471                  | 0.97  |
| 42.40     | 0.94 | 42.279                  | 1.06  |
| 49.93     | 1.11 | 38.624                  | 0.97  |
| 43.96     | 0.98 | 36.959                  | 0.93  |
| 50.54     | 1.12 | 39.963                  | 1.01  |
| 52.48     | 1.17 | 38.269                  | 0.96  |
| 51.45     | 1.14 | 39.934                  | 1.00  |
| 54.07     | 1.20 | 39.486                  | 0.99  |
| 44.946    |      | 39.738                  | 12.00 |

539.355 12.000

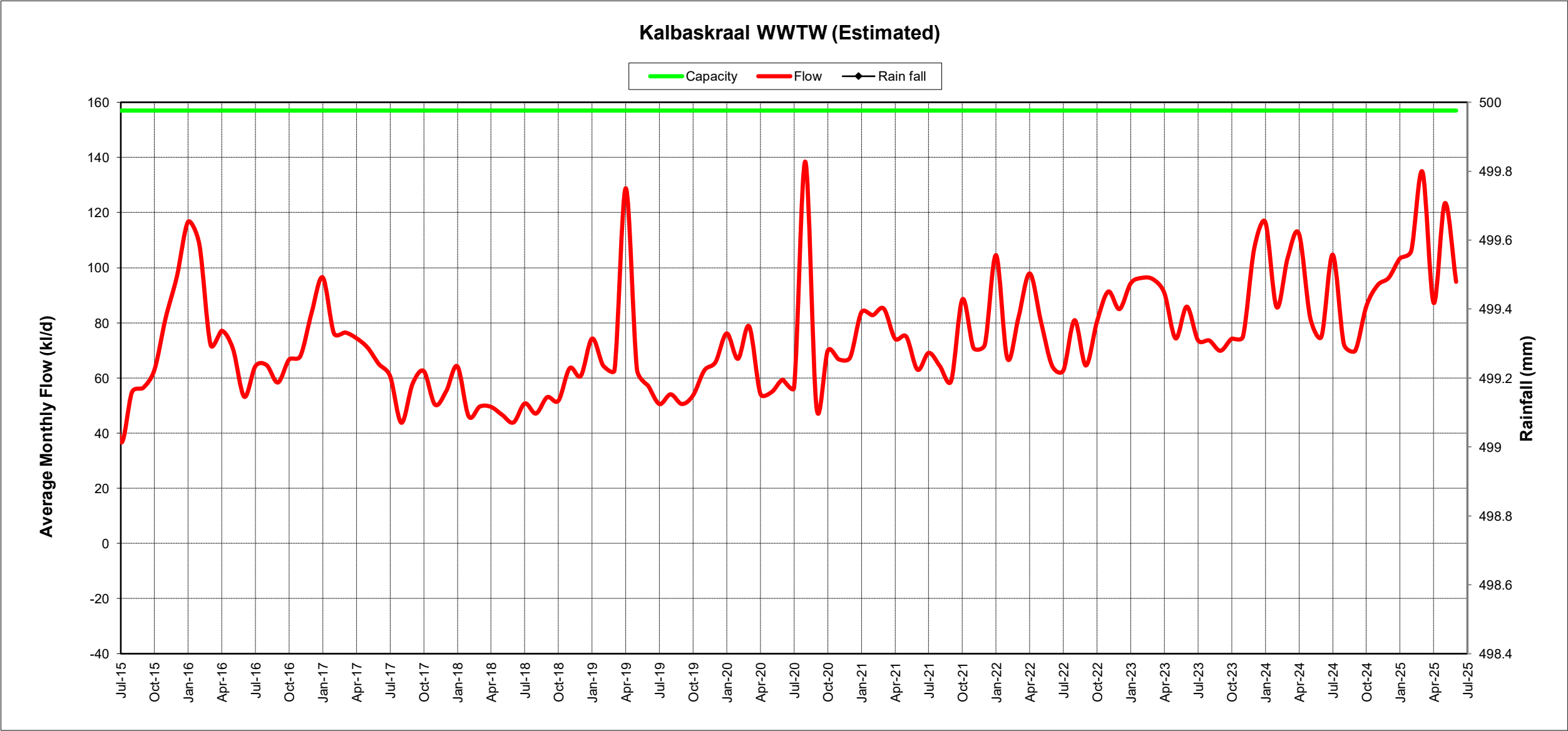
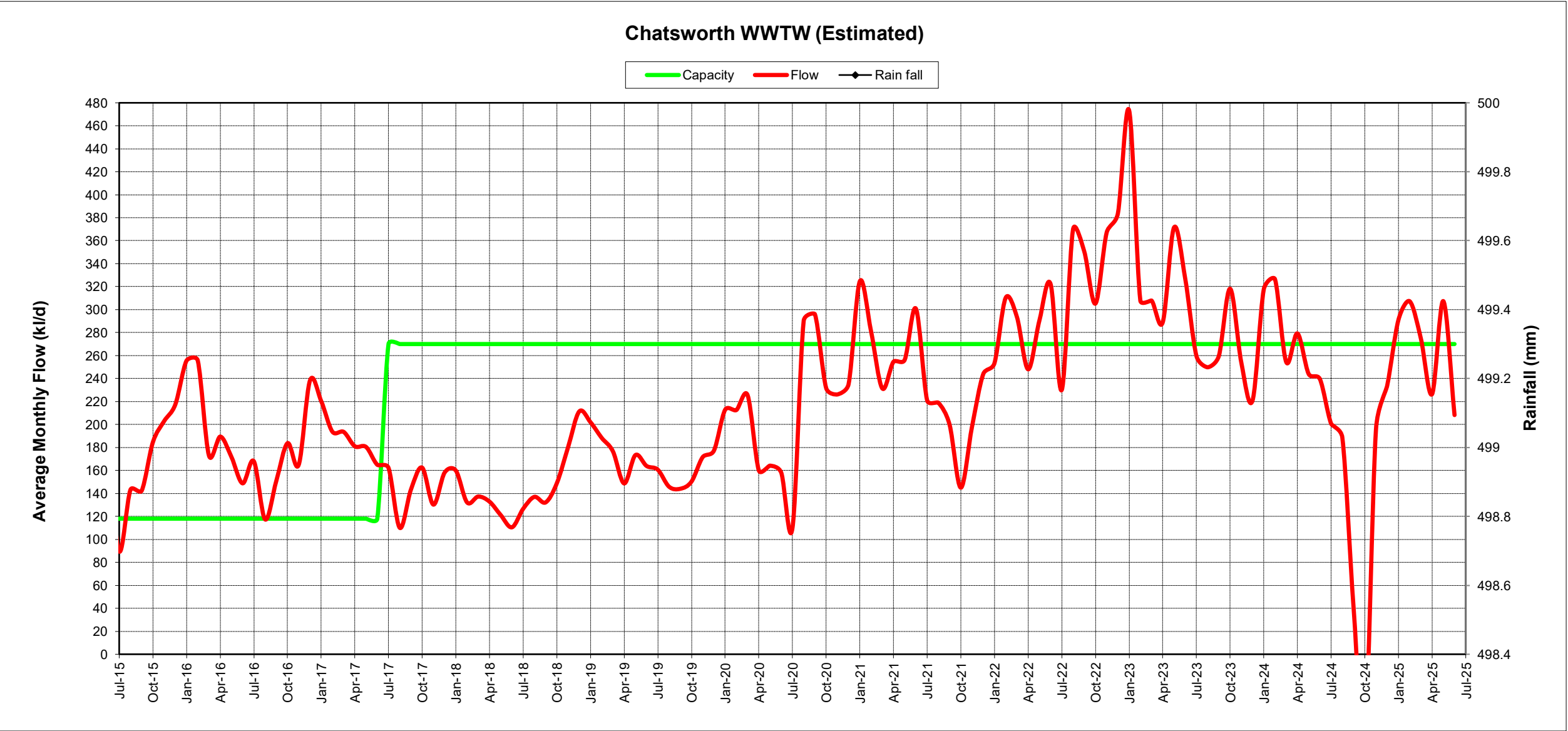
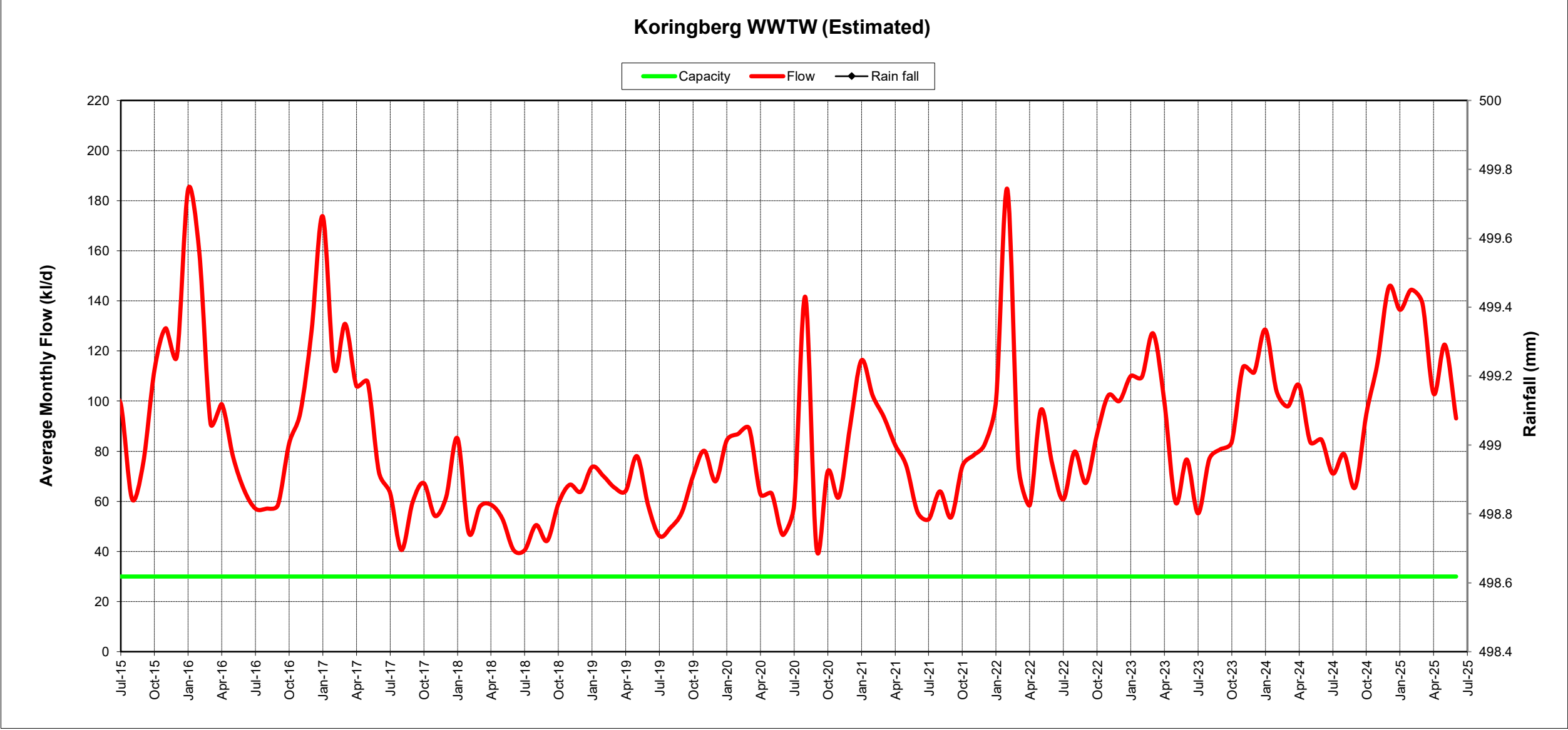
| 2024/2025 |      | Average over five years |       |
|-----------|------|-------------------------|-------|
| 86.09     | 2.21 | 42.071                  | 1.47  |
| 74.46     | 1.92 | 44.686                  | 1.56  |
| 38.23     | 0.98 | 31.319                  | 1.09  |
| 42.10     | 1.08 | 27.058                  | 0.94  |
| 28.50     | 0.73 | 23.520                  | 0.82  |
| 28.85     | 0.74 | 25.474                  | 0.89  |
| 29.34     | 0.75 | 25.509                  | 0.89  |
| 23.72     | 0.61 | 22.724                  | 0.79  |
| 25.03     | 0.64 | 24.572                  | 0.86  |
| 25.26     | 0.65 | 22.630                  | 0.79  |
| 26.93     | 0.69 | 24.474                  | 0.85  |
| 38.07     | 0.98 | 29.996                  | 1.05  |
| 38.882    |      | 28.669                  | 12.00 |

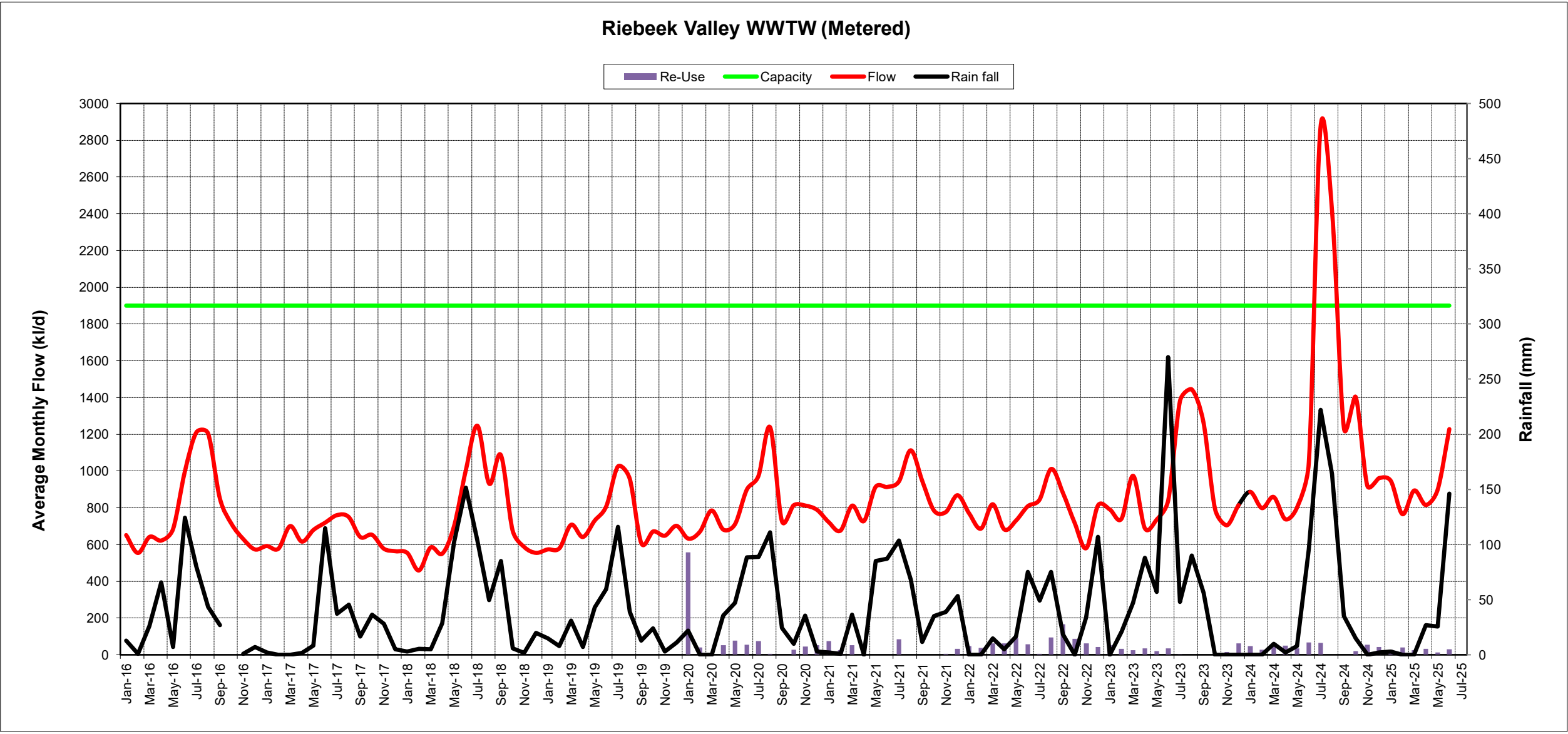
466.579 12.000



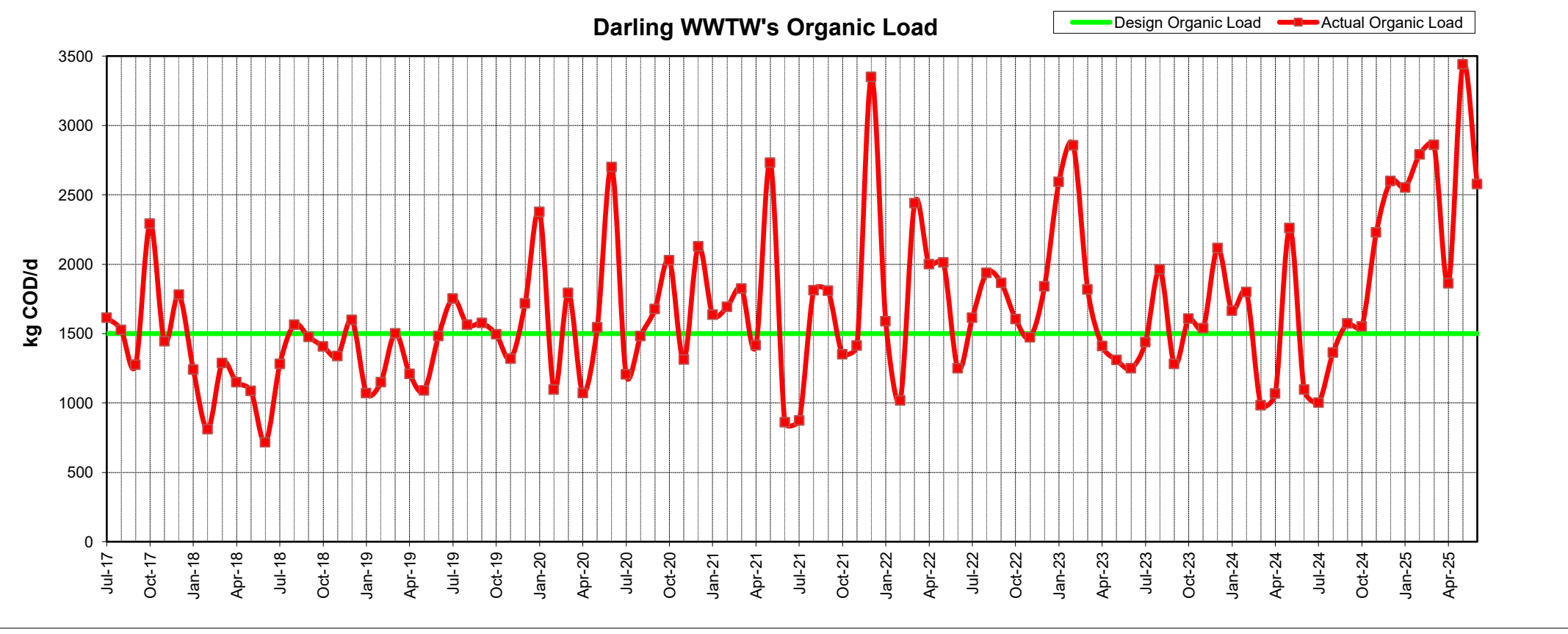
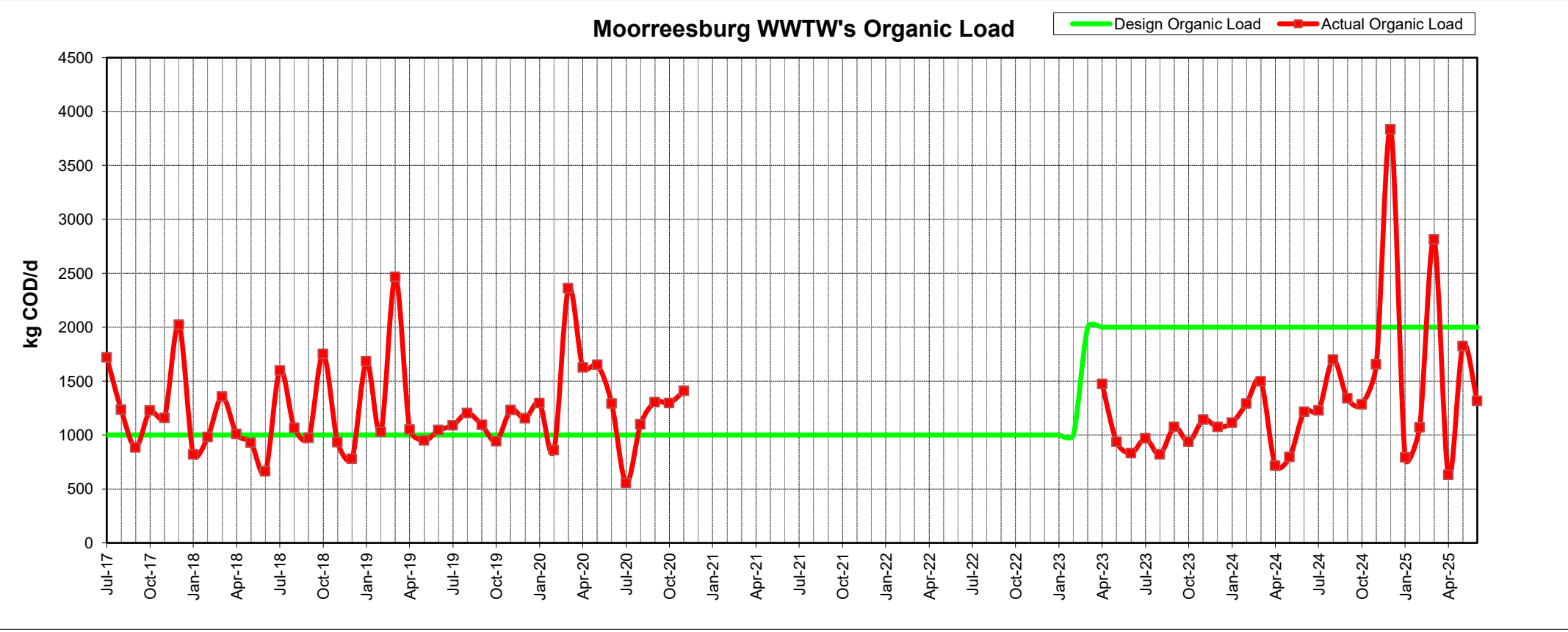
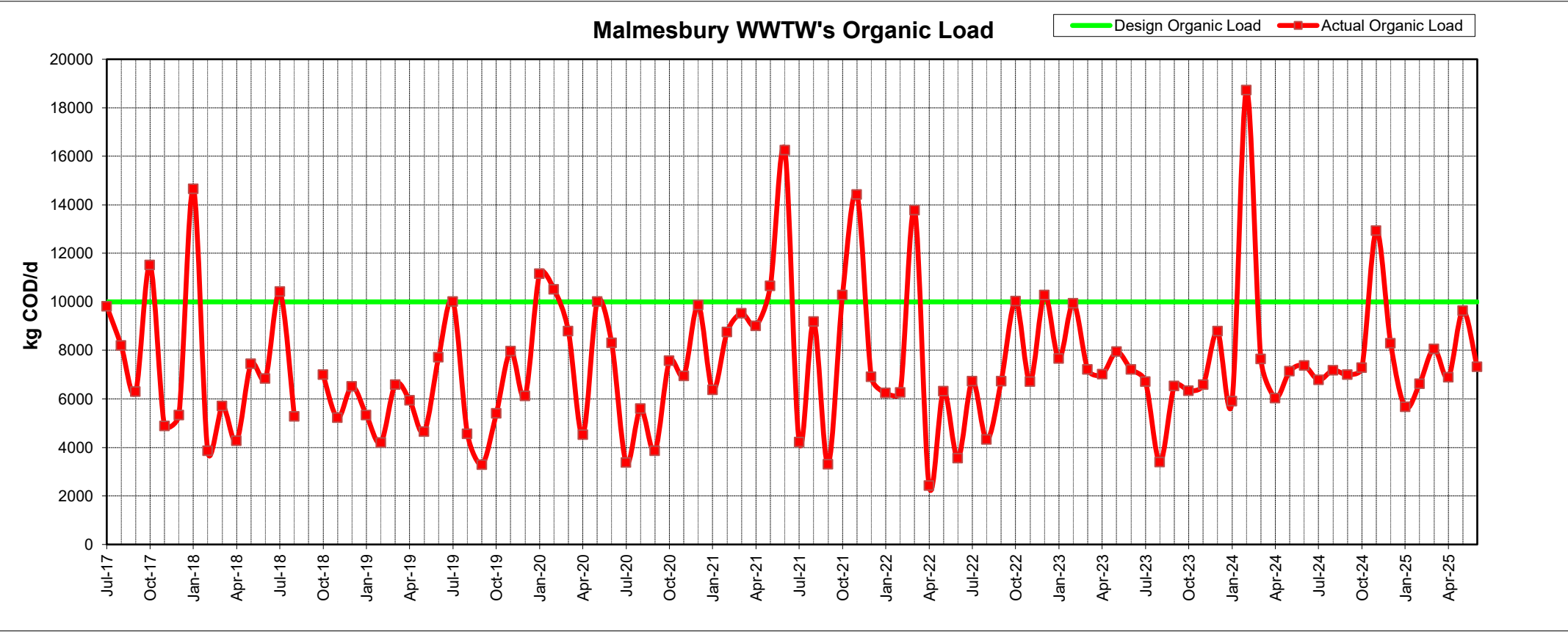


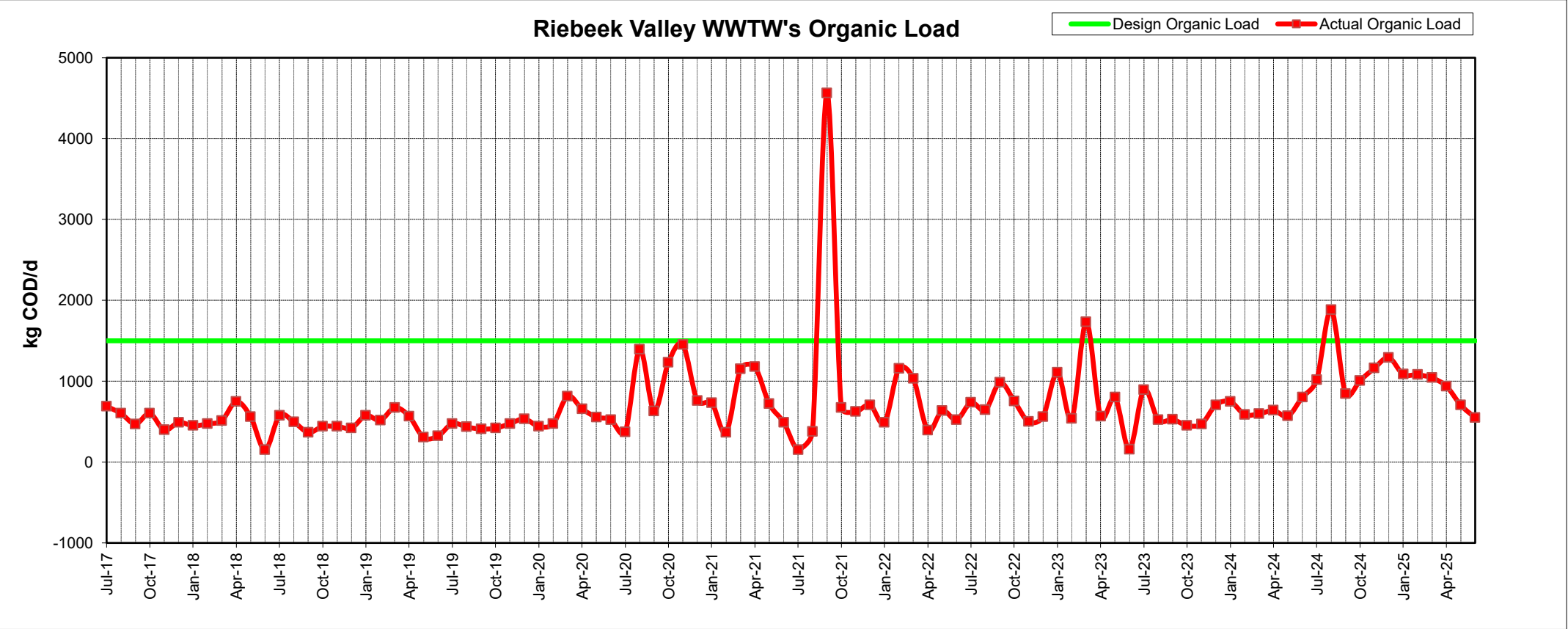














Capacity of WTWs in West Coast District Management Area

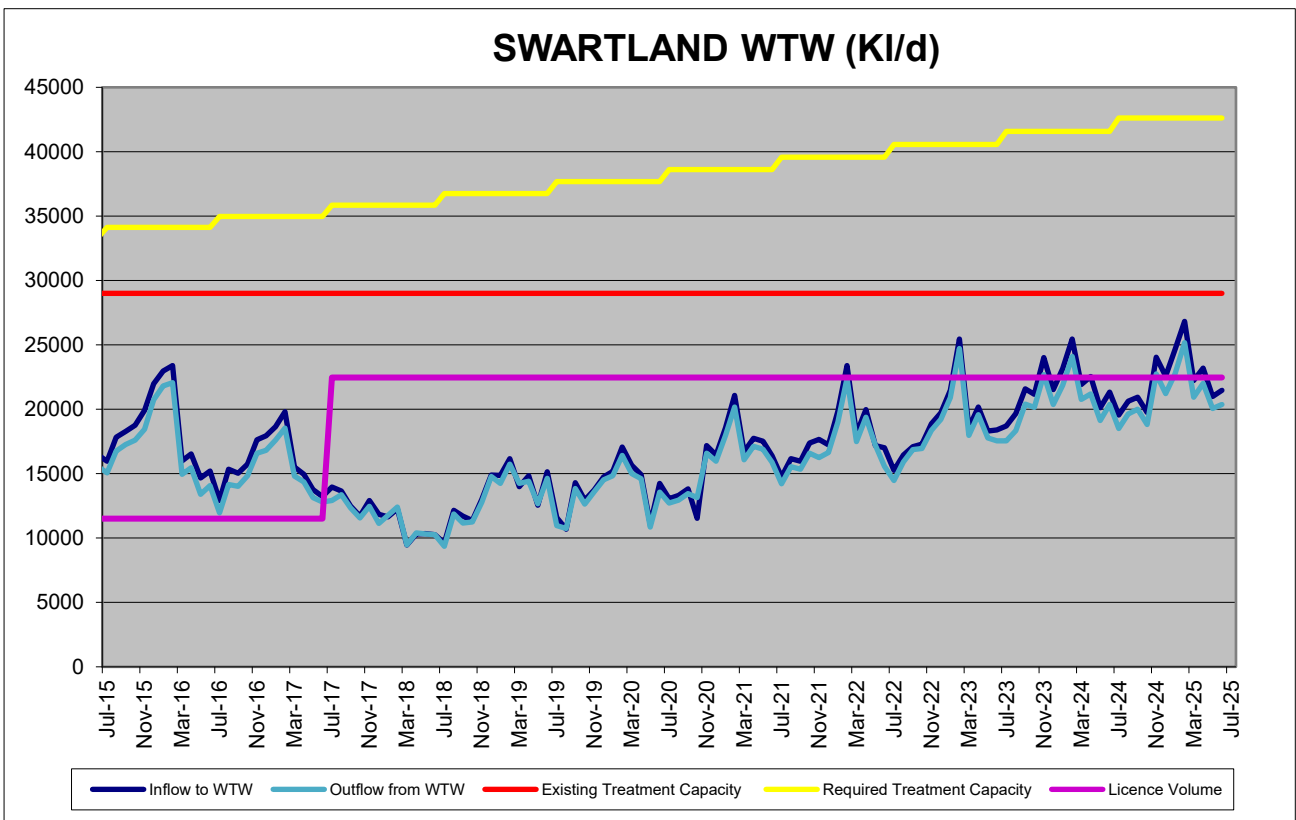
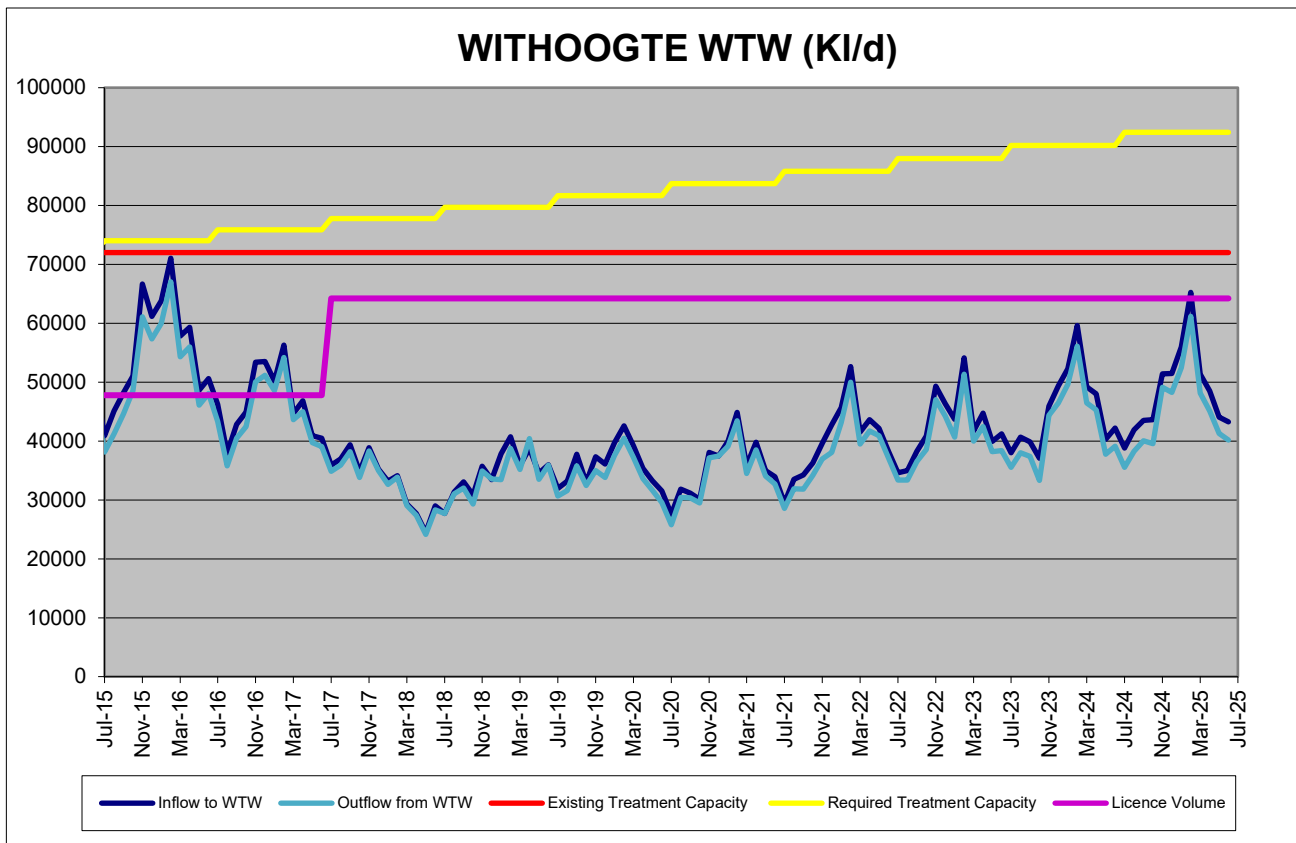
| Date | Withoogte WTW                                                                                                    |      |            |      |            |        |            |         |            |                      | Swartland WTW                                                                                    |                                                                                           |            |      |            |      |            |      |            |      | Total WTWs           |                                                                                                  |                 |            |      |            |      |            |      |            | Required Capacity<br>(1.5x AADD <sub>1997</sub> ) |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |
|------|------------------------------------------------------------------------------------------------------------------|------|------------|------|------------|--------|------------|---------|------------|----------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------|------|------------|------|------------|------|------------|------|----------------------|--------------------------------------------------------------------------------------------------|-----------------|------------|------|------------|------|------------|------|------------|---------------------------------------------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|
|      | Licence Volume<br>(Saldanha 20427 Mla,<br>Swartland 1573.6 Mla<br>and Bergvliet 1439.4<br>Mla from 2017 onwards) |      |            |      |            | Inflow |            | Outflow |            | Existing<br>Capacity | Required Capacity<br>(1.5x AADD <sub>1997</sub> ),<br>Used 2.5% growth<br>on 2024/2025<br>demand | Licence Volume<br>(Swartland 7900 Mla<br>and Drakenstein 300<br>Mla from 2017<br>onwards) |            |      |            |      | Inflow     |      | Outflow    |      | Existing<br>Capacity | Required Capacity<br>(1.5x AADD <sub>1997</sub> ),<br>Used 2.5% growth<br>on 2024/2025<br>demand | Yield of source | Total WTWs |      |            |      |            |      |            |                                                   |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |
|      | Total flow                                                                                                       | Flow | Total flow | Flow | Total flow | Flow   | Total flow | Flow    | Total flow |                      |                                                                                                  | Flow                                                                                      | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow |                      |                                                                                                  |                 | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow |                                                   | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow | Flow | Total flow |

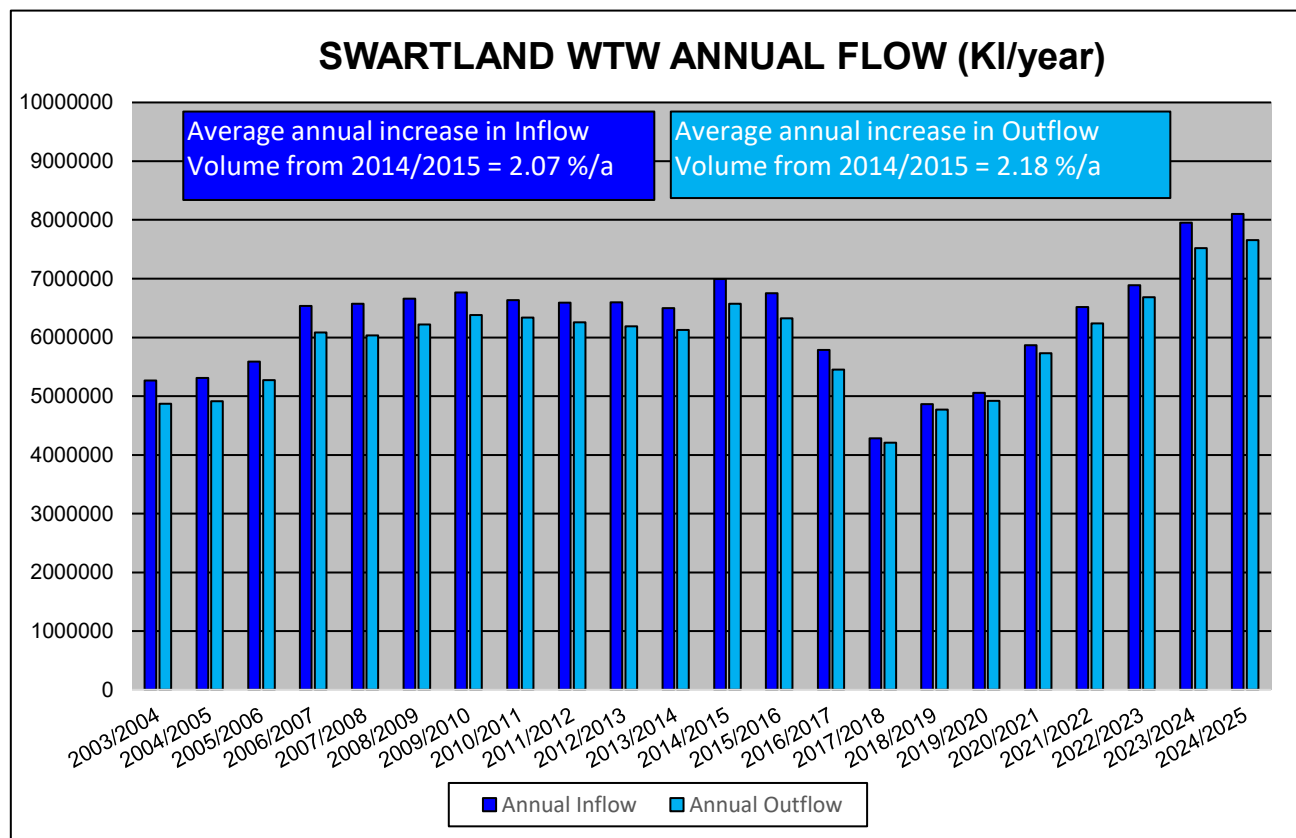
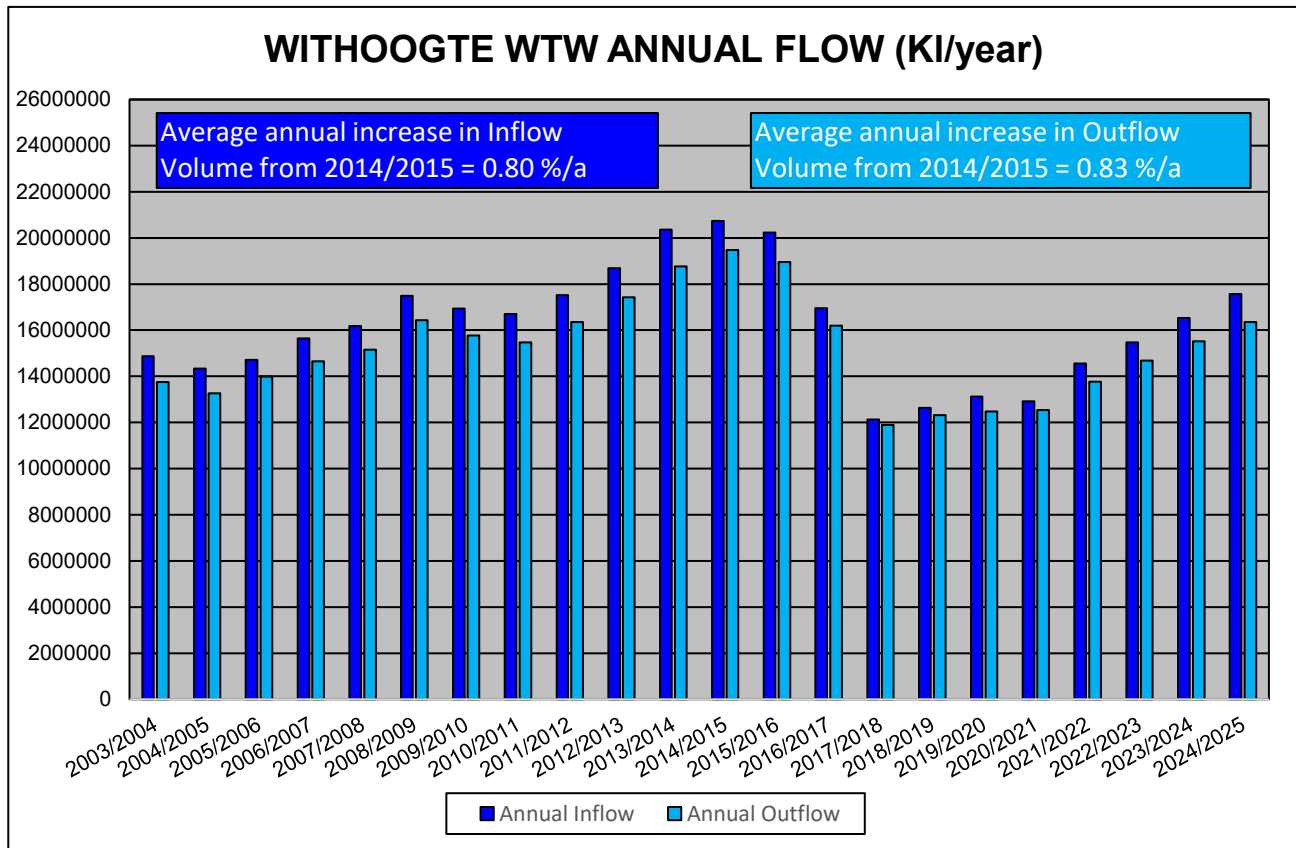


Capacity of WTWs in West Coast District Management Area

| Date   | Withoogte WTW                                                                                                    |         |            |         |            |        |            |         |            |                      | Swartland WTW                                                                                |                                                                                           |            |       |            |         |            |         |            |        | Total WTWs           |                                                                                              |                 |            |      |          |                                                  |      |    |      |
|--------|------------------------------------------------------------------------------------------------------------------|---------|------------|---------|------------|--------|------------|---------|------------|----------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------|-------|------------|---------|------------|---------|------------|--------|----------------------|----------------------------------------------------------------------------------------------|-----------------|------------|------|----------|--------------------------------------------------|------|----|------|
|        | Licence Volume<br>(Saldanha 20427 Mla,<br>Swartland 1573.6 Mla<br>and Bergvriër 1439.4<br>Mla from 2017 onwards) |         |            |         |            | Inflow |            | Outflow |            | Existing<br>Capacity | Required Capacity<br>(1.5x AADD <sub>10p</sub> ),<br>Used 2.5% growth<br>on 2024/2025 demand | Licence Volume<br>(Swartland 7900 Mla<br>and Drakenstein 300<br>Mla from 2017<br>onwards) |            |       |            |         | Inflow     |         | Outflow    |        | Existing<br>Capacity | Required Capacity<br>(1.5x AADD <sub>10p</sub> ),<br>Used 2.5% growth<br>on 2024/2025 demand | Yield of source | Total WTWs |      |          |                                                  |      |    |      |
|        | Total flow                                                                                                       | Flow    | Total flow | Flow    | Total flow | Flow   | Total flow | Flow    | Total flow |                      |                                                                                              | Flow                                                                                      | Total flow | Flow  | Total flow | Flow    | Total flow | Flow    | Total flow | Flow   |                      |                                                                                              |                 | Total flow | Flow | Capacity | Required Capacity<br>(1.5x AADD <sub>10p</sub> ) |      |    |      |
|        |                                                                                                                  |         |            |         |            |        |            |         |            |                      |                                                                                              |                                                                                           |            |       |            |         |            |         |            |        |                      |                                                                                              |                 |            |      |          |                                                  | kl/d | kl | kl/d |
| Jul-15 | 47781                                                                                                            | 1268784 | 40929      | 1182996 | 38161      | 72000  | 74011      | 11507   | 495018     | 15968                | 467086                                                                                       | 15067                                                                                     | 29000      | 34126 | 59288      | 1763802 | 58897      | 1650082 | 53228      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Aug-15 | 47781                                                                                                            | 1398327 | 45107      | 1277754 | 41218      | 72000  | 74011      | 11507   | 552394     | 17819                | 519609                                                                                       | 16762                                                                                     | 29000      | 34126 | 59288      | 1950721 | 62926      | 1797363 | 57979      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Sep-15 | 47781                                                                                                            | 1445107 | 48170      | 1338812 | 44627      | 72000  | 74011      | 11507   | 548888     | 18290                | 518071                                                                                       | 17269                                                                                     | 29000      | 34126 | 59288      | 1993795 | 66460      | 1856883 | 61896      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Oct-15 | 47781                                                                                                            | 1582871 | 51060      | 1506317 | 48591      | 72000  | 74011      | 11507   | 581349     | 18750                | 545364                                                                                       | 17592                                                                                     | 29000      | 34126 | 59288      | 2164120 | 69810      | 2051681 | 66183      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Nov-15 | 47781                                                                                                            | 200854  | 66868      | 183752  | 61125      | 72000  | 74011      | 11507   | 597543     | 19832                | 535655                                                                                       | 19455                                                                                     | 29000      | 34126 | 59288      | 2598602 | 86620      | 2387407 | 75880      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Dec-15 | 47781                                                                                                            | 1866620 | 61181      | 1778160 | 57360      | 72000  | 74011      | 11507   | 681669     | 21989                | 642510                                                                                       | 20726                                                                                     | 29000      | 34126 | 59288      | 2578289 | 83171      | 2420670 | 78086      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jan-16 | 47781                                                                                                            | 1878381 | 63819      | 1859865 | 59996      | 72000  | 74011      | 11507   | 712225     | 22975                | 675720                                                                                       | 21797                                                                                     | 29000      | 34126 | 59288      | 2690606 | 86794      | 2535585 | 81793      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Feb-16 | 47781                                                                                                            | 2061029 | 71070      | 1943122 | 67004      | 72000  | 74011      | 11507   | 678329     | 23391                | 639748                                                                                       | 22060                                                                                     | 29000      | 34126 | 59288      | 2735359 | 94481      | 2582870 | 89064      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Mar-16 | 47781                                                                                                            | 1793214 | 57846      | 1683769 | 54315      | 72000  | 74011      | 11507   | 495596     | 15987                | 463649                                                                                       | 14656                                                                                     | 29000      | 34126 | 59288      | 2288810 | 73833      | 2147418 | 69272      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Apr-16 | 47781                                                                                                            | 1779896 | 59330      | 1679148 | 55972      | 72000  | 74011      | 11507   | 495596     | 16520                | 463649                                                                                       | 14545                                                                                     | 29000      | 34126 | 59288      | 2275492 | 75850      | 2142797 | 71427      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| May-16 | 47781                                                                                                            | 1507246 | 48621      | 1429684 | 48119      | 72000  | 74011      | 11507   | 454641     | 14666                | 415236                                                                                       | 13395                                                                                     | 29000      | 34126 | 59288      | 1961887 | 63287      | 1844920 | 59514      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jun-16 | 47781                                                                                                            | 1518325 | 50611      | 1442429 | 49081      | 72000  | 74011      | 11507   | 456250     | 15208                | 422370                                                                                       | 14079                                                                                     | 29000      | 34126 | 59288      | 1974575 | 65819      | 1864799 | 62160      | 101000 | 108137               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jul-16 | 47781                                                                                                            | 1433552 | 46244      | 1342504 | 43307      | 72000  | 75961      | 11507   | 400424     | 12917                | 370523                                                                                       | 11965                                                                                     | 29000      | 34979 | 59288      | 1833976 | 59161      | 1713427 | 55272      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Aug-16 | 47781                                                                                                            | 1176951 | 37966      | 1109612 | 35762      | 72000  | 75961      | 11507   | 475394     | 15335                | 435993                                                                                       | 14148                                                                                     | 29000      | 34979 | 59288      | 1652345 | 53301      | 1547205 | 49910      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Sep-16 | 47781                                                                                                            | 1285264 | 42842      | 1214642 | 40488      | 72000  | 75961      | 11507   | 450677     | 15023                | 420457                                                                                       | 14015                                                                                     | 29000      | 34979 | 59288      | 1735941 | 57865      | 1635096 | 54503      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Oct-16 | 47781                                                                                                            | 1392267 | 44912      | 1315352 | 42431      | 72000  | 75961      | 11507   | 489021     | 15743                | 460118                                                                                       | 14843                                                                                     | 29000      | 34979 | 59288      | 1880286 | 60654      | 1775470 | 57273      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Nov-16 | 47781                                                                                                            | 1601317 | 53377      | 1501914 | 50064      | 72000  | 75961      | 11507   | 528627     | 17621                | 497286                                                                                       | 16576                                                                                     | 29000      | 34979 | 59288      | 2129944 | 70998      | 1999200 | 66640      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Dec-16 | 47781                                                                                                            | 1659443 | 53530      | 1585943 | 51159      | 72000  | 75961      | 11507   | 556155     | 17940                | 521272                                                                                       | 16815                                                                                     | 29000      | 34979 | 59288      | 2215598 | 71471      | 2107215 | 67975      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jan-17 | 47781                                                                                                            | 1555731 | 50185      | 1450438 | 48546      | 72000  | 75961      | 11507   | 577770     | 18638                | 546024                                                                                       | 17614                                                                                     | 29000      | 34979 | 59288      | 2133501 | 68823      | 2050960 | 66160      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Feb-17 | 47781                                                                                                            | 1575603 | 56272      | 1516949 | 53541      | 72000  | 75961      | 11507   | 554525     | 19816                | 518981                                                                                       | 18535                                                                                     | 29000      | 34979 | 59288      | 2130455 | 70689      | 2035830 | 72712      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Mar-17 | 47781                                                                                                            | 1384894 | 44674      | 1353266 | 43654      | 72000  | 75961      | 11507   | 480875     | 15512                | 459412                                                                                       | 14820                                                                                     | 29000      | 34979 | 59288      | 1865769 | 60186      | 1812678 | 58473      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Apr-17 | 47781                                                                                                            | 1406564 | 48655      | 1349300 | 44977      | 72000  | 75961      | 11507   | 448201     | 14940                | 430506                                                                                       | 14350                                                                                     | 29000      | 34979 | 59288      | 1853855 | 61795      | 1779806 | 59327      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| May-17 | 47781                                                                                                            | 1267473 | 40866      | 1231862 | 39737      | 72000  | 75961      | 11507   | 428431     | 13756                | 407596                                                                                       | 13148                                                                                     | 29000      | 34979 | 59288      | 1693904 | 54542      | 1639458 | 51854      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jun-17 | 47781                                                                                                            | 1214649 | 40488      | 1171693 | 39056      | 72000  | 75961      | 11507   | 396629     | 13221                | 383930                                                                                       | 12798                                                                                     | 29000      | 34979 | 59288      | 1611278 | 53709      | 1555623 | 51854      | 101000 | 10840                |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jul-17 | 64219                                                                                                            | 112971  | 35902      | 1080219 | 34846      | 72000  | 77757      | 22466   | 432703     | 13958                | 400803                                                                                       | 12929                                                                                     | 29000      | 35854 | 86685      | 1456674 | 49860      | 1481022 | 47775      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Aug-17 | 64219                                                                                                            | 1144912 | 36933      | 1112371 | 35883      | 72000  | 77757      | 22466   | 422921     | 13643                | 414342                                                                                       | 13368                                                                                     | 29000      | 35854 | 86685      | 1567833 | 50575      | 1526713 | 45249      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Sep-17 | 64219                                                                                                            | 1181127 | 39371      | 1141802 | 38168      | 72000  | 77757      | 22466   | 411938     | 13742                | 407499                                                                                       | 13343                                                                                     | 29000      | 35854 | 86685      | 1536936 | 51035      | 1457432 | 48563      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Oct-17 | 64219                                                                                                            | 1078673 | 34828      | 1047235 | 33782      | 72000  | 77757      | 22466   | 362731     | 11701                | 358102                                                                                       | 11549                                                                                     | 29000      | 35854 | 86685      | 1442404 | 46529      | 1405247 | 45331      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Nov-17 | 64219                                                                                                            | 1166955 | 38899      | 1150339 | 38345      | 72000  | 77757      | 22466   | 387185     | 12906                | 374116                                                                                       | 12471                                                                                     | 29000      | 35854 | 86685      | 1554140 | 51805      | 1524455 | 50815      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Dec-17 | 64219                                                                                                            | 1091807 | 35220      | 1084785 | 34978      | 72000  | 77757      | 22466   | 367420     | 11852                | 352942                                                                                       | 11590                                                                                     | 29000      | 35854 | 86685      | 1455227 | 47072      | 1429968 | 45128      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jan-18 | 64219                                                                                                            | 1028418 | 33175      | 1011707 | 32536      | 72000  | 77757      | 22466   | 345546     | 10639                | 334066                                                                                       | 11744                                                                                     | 29000      | 35854 | 86685      | 1389238 | 44814      | 1357173 | 44380      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Feb-18 | 64219                                                                                                            | 955388  | 34121      | 948486  | 33875      | 72000  | 77757      | 22466   | 343158     | 12256                | 347115                                                                                       | 12397                                                                                     | 29000      | 35854 | 86685      | 1298546 | 46377      | 1295801 | 46271      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Mar-18 | 64219                                                                                                            | 909315  | 29333      | 899639  | 29027      | 72000  | 77757      | 22466   | 293254     | 9460                 | 293817                                                                                       | 9478                                                                                      | 29000      | 35854 | 86685      | 1202569 | 38793      | 1193856 | 38505      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Apr-18 | 64219                                                                                                            | 831383  | 27680      | 821708  | 27390      | 72000  | 77757      | 22466   | 273961     | 10320                | 269814                                                                                       | 10415                                                                                     | 29000      | 35854 | 86685      | 1099990 | 38000      | 1134143 | 37805      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| May-18 | 64219                                                                                                            | 758604  | 24471      | 748557  | 24147      | 72000  | 77757      | 22466   | 321049     | 10356                | 319458                                                                                       | 10305                                                                                     | 29000      | 35854 | 86685      | 1079653 | 34828      | 1068015 | 34452      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jun-18 | 64219                                                                                                            | 870048  | 29002      | 848585  | 28286      | 72000  | 77757      | 22466   | 307532     | 10251                | 307988                                                                                       | 10266                                                                                     | 29000      | 35854 | 86685      | 1177580 | 39253      | 1155673 | 38552      | 101000 | 113611               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jul-18 | 64219                                                                                                            | 859525  | 27727      | 859128  | 27714      | 72000  | 79701      | 22466   | 297896     | 9610                 | 289843                                                                                       | 9349                                                                                      | 29000      | 36750 | 86685      | 1157421 | 37336      | 1148899 | 37063      | 101000 | 116452               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Aug-18 | 64219                                                                                                            | 971133  | 31327      | 961446  | 31037      | 72000  | 79701      | 22466   | 313297     | 11581                | 307518                                                                                       | 11181                                                                                     | 29000      | 36750 | 86685      | 1349027 | 43485      | 1320463 | 42918      | 101000 | 116452               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Sep-18 | 64219                                                                                                            | 991980  | 33066      | 961262  | 32042      | 72000  | 79701      | 22466   | 351188     | 11706                | 334762                                                                                       | 11159                                                                                     | 29000      | 36750 | 86685      | 1343168 | 44772      | 1296024 | 43201      | 101000 | 116452               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Oct-18 | 64219                                                                                                            | 956755  | 30863      | 907603  | 29278      | 72000  | 79701      | 22466   | 352299     | 11364                | 348579                                                                                       | 11244                                                                                     | 29000      | 36750 | 86685      | 1309054 | 42228      | 1256182 | 40522      | 101000 | 116452               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Nov-18 | 64219                                                                                                            | 1072594 | 35753      | 1047391 | 34913      | 72000  | 79701      | 22466   | 389951     | 12998                | 362992                                                                                       | 12766                                                                                     | 29000      | 36750 | 86685      | 1462545 | 48752      | 1430383 | 47679      | 101000 | 116452               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Dec-18 | 64219                                                                                                            | 1036942 | 33450      | 1030761 | 32541      | 72000  | 79701      | 22466   | 461546     | 14889                | 458126                                                                                       | 14778                                                                                     | 29000      | 36750 | 86685      | 1499498 | 49338      | 1497889 | 48319      | 101000 | 116452               |                                                                                              |                 |            |      |          |                                                  |      |    |      |
| Jan-19 | 64219                                                                                                            | 1173076 | 37841      | 1136761 | 3          |        |            |         |            |                      |                                                                                              |                                                                                           |            |       |            |         |            |         |            |        |                      |                                                                                              |                 |            |      |          |                                                  |      |    |      |









## **ANNEXURE B**

### **No Drop Spreadsheets and ILI**

SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                                               |                           |
|-----------------------------|-------------------------------------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Malmesbury)                                           |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality, Paardenberg Dam, Boreholes |                           |
| Contact Details:            | Name                                                                          | Mr E de Jager             |
|                             | Address                                                                       | Private Bag X52           |
|                             |                                                                               | Malmesbury                |
|                             |                                                                               | 7299                      |
|                             | Telephone                                                                     | +27(22) 487 9400          |
|                             | Fax                                                                           | +27(22) 487 9440          |
|                             | E-mail                                                                        | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 131       | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 48        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 631       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 2.7       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 22        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 15        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customet meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 41        | Metres          |
| Density of connections     | 20            | 45     | 120  | 48        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 2914879 | 0.63              | 80.0                     |
| Apparent Losses                          | 123773  | 0.03              | 3.4                      |
| Actual Consumption excluding exports     | 3038652 | 0.66              | 83.4                     |
| Real Losses                              | 604304  | 0.13              | 16.6                     |
| System Input Volume                      | 3642956 | 0.79              | 100.0                    |

DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                                               |                           |
|-----------------------------|-------------------------------------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Malmesbury)                                           |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality, Paardenberg Dam, Boreholes |                           |
| Contact Details:            | Name                                                                          | Mr E de Jager             |
|                             | Address                                                                       | Private Bag X52           |
|                             |                                                                               | Malmesbury                |
|                             |                                                                               | 7299                      |
|                             | Telephone                                                                     | +27(22) 487 9400          |
|                             | Fax                                                                           | +27(22) 487 9440          |
|                             | E-mail                                                                        | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 264         | km     |
| Number of Service Connections                        | Ns       | 60000        | 12650       | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 48          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 41          | metres |
| Population served by the supply system               | Pop      | 100000       | 82330       | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 12650

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                                                         | Calculation                                                                        | Example Result | Actual Data | Units                        |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains                                                        | $18 \times \text{Lm} \times \text{P} \times 365 \times \text{T} / 10^8$            | 443            | 71          | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections                                          | $0.8 \times \text{Ns} \times \text{P} \times 365 \times \text{T} / 10^8$           | 788            | 151         | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL                                            |                                                                                    | 1232           | 223         | $10^3 \text{ m}^3/\text{yr}$ |
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (\text{Ns} \times 365 \times \text{T} / 100)$ | 56             | 48          | Litres/ conn./day            |



D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    | 0                                          |                                 |                                    |                                              | 0                                        |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 3643                                       |                                 |                                    |                                              | 3643                                     |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 3643                                       |                                 |                                    |                                              | 3643                                     |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 1822                                              |                                                     |                                                     | 67                                                    | 1889                                     |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 475                                               |                                                     |                                                     |                                                       | 475                                      |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 4                                                     | 4                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 4                                                     | 4                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):<br>Other            |                                                   |                                                     |                                                     |                                                       |                                          | 450                                               |                                                     |                                                     |                                                       | 450                                      |
| Other (specify):<br>Farms            |                                                   |                                                     |                                                     |                                                       |                                          | 94                                                |                                                     |                                                     |                                                       | 94                                       |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 2840                                              |                                                     |                                                     | 75                                                    | 2915                                     |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 728           | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 124           | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |     |                                    |
|-----------------------------------------------------------|------|-----|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 604 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|-----|------------------------------------|

D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 131           | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 631           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 2.71          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result                     |                                    |                   | Actual Result                      |                                    |                   |
|-------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------|------------------------------------|-------------------|
|                               | Volume                             | System Input                       | % of System Input | Volume                             | System Input                       | % of System Input |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   |
| Unbilled Consumption          | 210                                | 38000                              | 0.55              | 75                                 | 3643                               | 2.05              |
| Apparent Losses:              | 550                                | 38000                              | 1.45              | 124                                | 3643                               | 3.40              |
| Real Losses:                  | 2200                               | 38000                              | 5.79              | 604                                | 3643                               | 16.59             |
| Total Unbilled:               | 2960                               | 38000                              | 7.79              | 803                                | 3643                               | 22.03             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                  |
|----------------------------------------------------------|--------------|-------------|------------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 58917       | 10 <sup>3</sup> R/year |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result                     |                   |                        |                           | Actual Result                      |                       |                        |                           |
|-------------------------------|------------------------------------|-------------------|------------------------|---------------------------|------------------------------------|-----------------------|------------------------|---------------------------|
|                               | Volume                             | Unit Value        | Value                  | % of Annual Running Costs | Volume                             | Unit Value            | Value                  | % of Annual Running Costs |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | R /m <sup>3</sup> | 10 <sup>3</sup> R/year | Costs                     | 10 <sup>3</sup> m <sup>3</sup> /yr | ( R /m <sup>3</sup> ) | 10 <sup>3</sup> R/year | Costs                     |
| Unbilled Consumption          | 210                                | 2.70              | 567                    | 1.26                      | 75                                 | 20.07                 | 1497                   | 2.54                      |
| Apparent Losses:              | 550                                | 2.70              | 1485                   | 3.30                      | 124                                | 20.07                 | 2484                   | 4.22                      |
| Real Losses:                  | 2200                               | 0.15              | 330                    | 0.73                      | 604                                | 7.88                  | 4762                   | 8.08                      |
| Total Unbilled:               | 2960                               |                   | 2382                   | 5.29                      | 803                                |                       | 8743                   | 14.84                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                  |                                       |                                  |
|---------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------|----------------------------------|
| System<br>Input<br>Volume<br>=<br>789 | Total<br>Consumption<br>=<br>658 | Billed<br>Authorised<br>Consumption<br>=<br>615  | Authorised<br>Consumption<br>=<br>631 | Revenue<br>Water<br><br>615      |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>16 |                                       | Non-Revenue<br>Water<br>=<br>174 |
|                                       |                                  | Apparent<br>Losses<br>=<br>27                    | Total<br>Losses<br>=<br>158           |                                  |
|                                       | Real<br>Losses<br>=<br>131       |                                                  |                                       |                                  |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 789              | Litres/conn/day |
| Total Consumption   | from D7b    | 658              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 131              | Litres/conn/day |

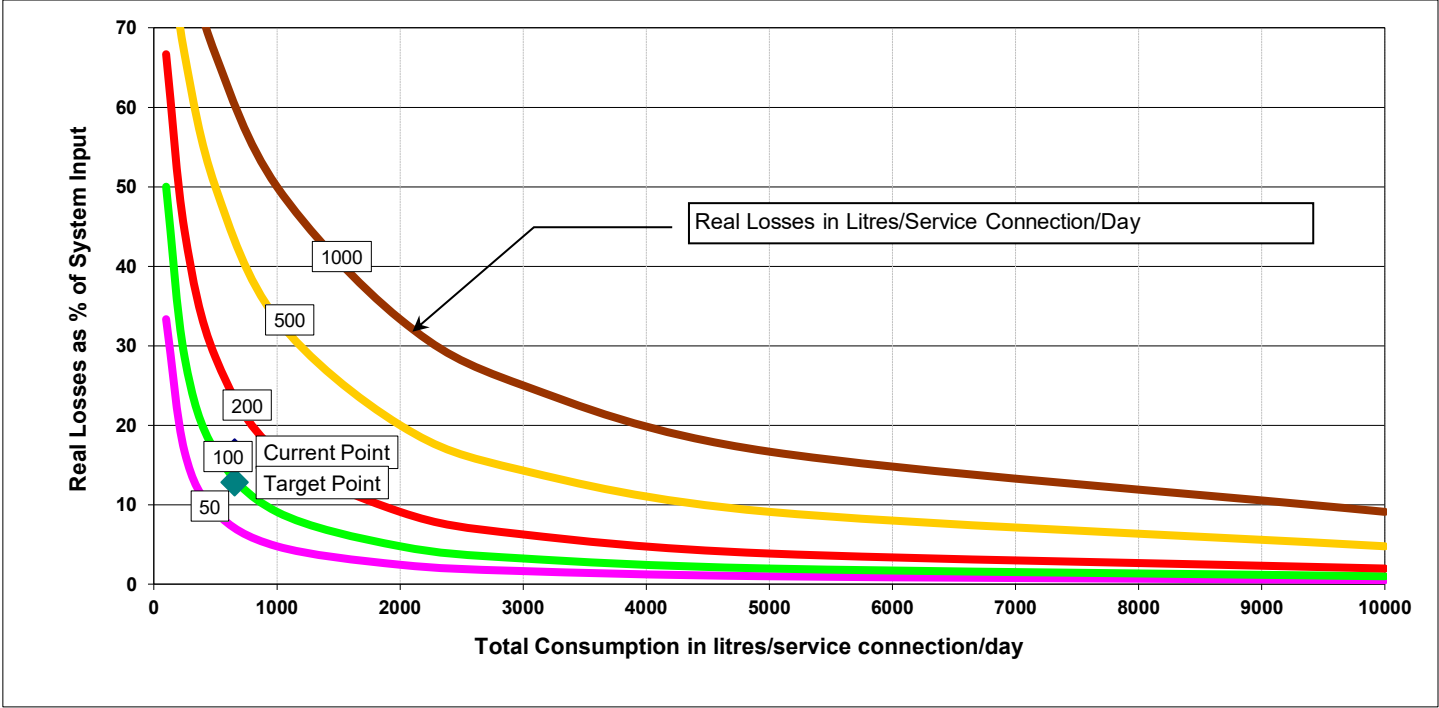
|                          |                                 |    |   |
|--------------------------|---------------------------------|----|---|
| ARL as % of System Input | ARL / System input volume x 100 | 17 | % |
|--------------------------|---------------------------------|----|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 48               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 96               | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 131              | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | 34               | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 13 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection for different values of Real Losses in litres/service connection/day





SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Moorreesburg)             |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 161       | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 54        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 499       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 3.0       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 30        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 20        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customet meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 44        | Metres          |
| Density of connections     | 20            | 45     | 120  | 44        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 582781  | 0.50              | 72.0                     |
| Apparent Losses                          | 38454   | 0.03              | 4.8                      |
| Actual Consumption excluding exports     | 621235  | 0.53              | 76.8                     |
| Real Losses                              | 187745  | 0.16              | 23.2                     |
| System Input Volume                      | 808980  | 0.69              | 100.0                    |

DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Moorreesburg)             |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 73          | km     |
| Number of Service Connections                        | Ns       | 60000        | 3197        | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 44          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 44          | metres |
| Population served by the supply system               | Pop      | 100000       | 21441       | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 3197

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                                                         | Calculation                                                                        | Example Result | Actual Data | Units                        |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains                                                        | $18 \times \text{Lm} \times \text{P} \times 365 \times \text{T} / 10^8$            | 443            | 21          | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections                                          | $0.8 \times \text{Ns} \times \text{P} \times 365 \times \text{T} / 10^8$           | 788            | 41          | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL                                            |                                                                                    | 1232           | 63          | $10^3 \text{ m}^3/\text{yr}$ |
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (\text{Ns} \times 365 \times \text{T} / 100)$ | 56             | 54          | Litres/ conn./day            |

D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    |                                            |                                 |                                    |                                              |                                          |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 809                                        |                                 |                                    |                                              | 809                                      |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 809                                        |                                 |                                    |                                              | 809                                      |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 435                                               |                                                     |                                                     | 15                                                    | 449                                      |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 84                                                |                                                     |                                                     |                                                       | 84                                       |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 1                                                     | 1                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 1                                                     | 1                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):<br>Other            |                                                   |                                                     |                                                     |                                                       |                                          | 41                                                |                                                     |                                                     |                                                       | 41                                       |
| Other (specify):<br>Farms            |                                                   |                                                     |                                                     |                                                       |                                          | 7                                                 |                                                     |                                                     |                                                       | 7                                        |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 566                                               |                                                     |                                                     | 17                                                    | 583                                      |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 226           | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 38            | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |     |                                    |
|-----------------------------------------------------------|------|-----|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 188 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|-----|------------------------------------|



D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 161           | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 499           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 3.00          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result                     |                                    |                   | Actual Result                      |                                    |                   |
|-------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------|------------------------------------|-------------------|
|                               | Volume                             | System Input                       | % of System Input | Volume                             | System Input                       | % of System Input |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   |
| Unbilled Consumption          | 210                                | 38000                              | 0.55              | 17                                 | 809                                | 2.05              |
| Apparent Losses:              | 550                                | 38000                              | 1.45              | 38                                 | 809                                | 4.75              |
| Real Losses:                  | 2200                               | 38000                              | 5.79              | 188                                | 809                                | 23.21             |
| Total Unbilled:               | 2960                               | 38000                              | 7.79              | 243                                | 809                                | 30.01             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                  |
|----------------------------------------------------------|--------------|-------------|------------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 13084       | 10 <sup>3</sup> R/year |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result                     |                   |                        |                           | Actual Result                      |                       |                        |                           |
|-------------------------------|------------------------------------|-------------------|------------------------|---------------------------|------------------------------------|-----------------------|------------------------|---------------------------|
|                               | Volume                             | Unit Value        | Value                  | % of Annual Running Costs | Volume                             | Unit Value            | Value                  | % of Annual Running Costs |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | R /m <sup>3</sup> | 10 <sup>3</sup> R/year | Costs                     | 10 <sup>3</sup> m <sup>3</sup> /yr | ( R /m <sup>3</sup> ) | 10 <sup>3</sup> R/year | Costs                     |
| Unbilled Consumption          | 210                                | 2.70              | 567                    | 1.26                      | 17                                 | 20.07                 | 332                    | 2.54                      |
| Apparent Losses:              | 550                                | 2.70              | 1485                   | 3.30                      | 38                                 | 20.07                 | 772                    | 5.90                      |
| Real Losses:                  | 2200                               | 0.15              | 330                    | 0.73                      | 188                                | 7.88                  | 1479                   | 11.31                     |
| Total Unbilled:               | 2960                               |                   | 2382                   | 5.29                      | 243                                |                       | 2584                   | 19.75                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                  |                                       |                                  |
|---------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------|----------------------------------|
| System<br>Input<br>Volume<br>=<br>693 | Total<br>Consumption<br>=<br>532 | Billed<br>Authorised<br>Consumption<br>=<br>485  | Authorised<br>Consumption<br>=<br>499 | Revenue<br>Water<br><br>485      |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>14 |                                       | Non-Revenue<br>Water<br>=<br>208 |
|                                       |                                  | Apparent<br>Losses<br>=<br>33                    | Total<br>Losses<br>=<br>194           |                                  |
|                                       | Real<br>Losses<br>=<br>161       |                                                  |                                       |                                  |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 693              | Litres/conn/day |
| Total Consumption   | from D7b    | 532              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 161              | Litres/conn/day |

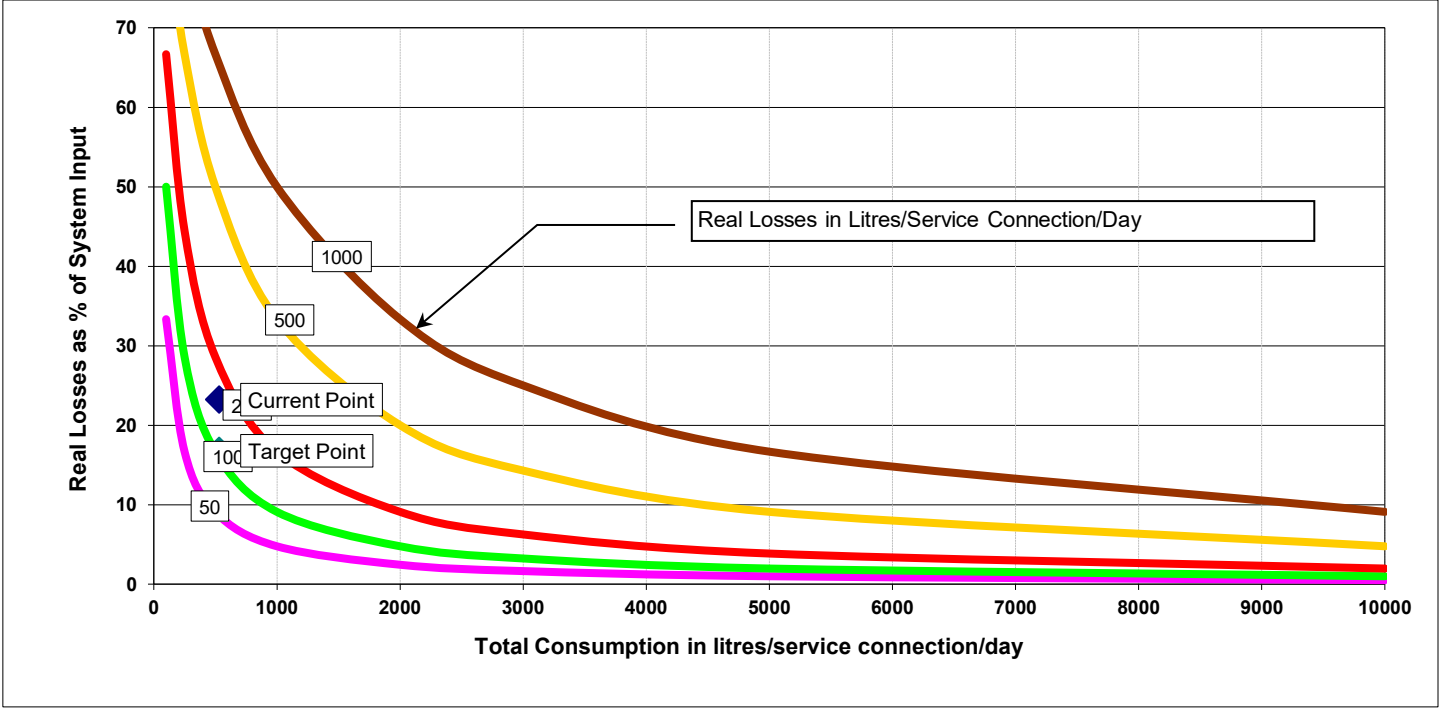
|                          |                                 |    |   |
|--------------------------|---------------------------------|----|---|
| ARL as % of System Input | ARL / System input volume x 100 | 23 | % |
|--------------------------|---------------------------------|----|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 54               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 107              | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 161              | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | 54               | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 17 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection for different values of Real Losses in litres/service connection/day



SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Darling)                  |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 126       | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 39        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 481       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 3.2       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 25        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 16        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customet meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 35        | Metres          |
| Density of connections     | 20            | 45     | 120  | 59        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 477883  | 0.48              | 76.0                     |
| Apparent Losses                          | 25605   | 0.03              | 4.1                      |
| Actual Consumption excluding exports     | 503488  | 0.51              | 80.1                     |
| Real Losses                              | 125012  | 0.13              | 19.9                     |
| System Input Volume                      | 628500  | 0.63              | 100.0                    |

DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Darling)                  |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 46          | km     |
| Number of Service Connections                        | Ns       | 60000        | 2722        | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 59          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 35          | metres |
| Population served by the supply system               | Pop      | 100000       | 13479       | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 2722

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                                                         | Calculation                                                        | Example Result | Actual Data | Units                        |
|-----------------------------------------------------------------|--------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains                                                        | $18 \times Lm \times P \times 365 \times T/10^8$                   | 443            | 11          | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections                                          | $0.8 \times Ns \times P \times 365 \times T/10^8$                  | 788            | 28          | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL                                            |                                                                    | 1232           | 39          | $10^3 \text{ m}^3/\text{yr}$ |
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (Ns \times 365 \times T/100)$ | 56             | 39          | Litres/ conn./day            |



D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    |                                            |                                 |                                    |                                              |                                          |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 629                                        |                                 |                                    |                                              | 629                                      |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 629                                        |                                 |                                    |                                              | 629                                      |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 355                                               |                                                     |                                                     | 7                                                     | 362                                      |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 92                                                |                                                     |                                                     |                                                       | 92                                       |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 1                                                     | 1                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 1                                                     | 1                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):                     |                                                   |                                                     |                                                     |                                                       |                                          | 23                                                |                                                     |                                                     |                                                       | 23                                       |
| Other                                |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):                     |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 470                                               |                                                     |                                                     | 8                                                     | 478                                      |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 151           | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 26            | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |     |                                    |
|-----------------------------------------------------------|------|-----|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 125 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|-----|------------------------------------|

D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 126           | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 481           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 3.23          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result               |                              |                   | Actual Result                |                              |                   |
|-------------------------------|------------------------------|------------------------------|-------------------|------------------------------|------------------------------|-------------------|
|                               | Volume                       | System Input                 | % of System Input | Volume                       | System Input                 | % of System Input |
|                               | $10^3 \text{ m}^3/\text{yr}$ | $10^3 \text{ m}^3/\text{yr}$ |                   | $10^3 \text{ m}^3/\text{yr}$ | $10^3 \text{ m}^3/\text{yr}$ |                   |
| Unbilled Consumption          | 210                          | 38000                        | 0.55              | 8                            | 629                          | 1.32              |
| Apparent Losses:              | 550                          | 38000                        | 1.45              | 26                           | 629                          | 4.07              |
| Real Losses:                  | 2200                         | 38000                        | 5.79              | 125                          | 629                          | 19.89             |
| Total Unbilled:               | 2960                         | 38000                        | 7.79              | 159                          | 629                          | 25.28             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                 |
|----------------------------------------------------------|--------------|-------------|-----------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 10165       | $10^3 \text{ R/year}$ |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result               |                   |                       |                           | Actual Result                |                       |                       |                           |
|-------------------------------|------------------------------|-------------------|-----------------------|---------------------------|------------------------------|-----------------------|-----------------------|---------------------------|
|                               | Volume                       | Unit Value        | Value                 | % of Annual Running Costs | Volume                       | Unit Value            | Value                 | % of Annual Running Costs |
|                               | $10^3 \text{ m}^3/\text{yr}$ | R /m <sup>3</sup> | $10^3 \text{ R/year}$ | Costs                     | $10^3 \text{ m}^3/\text{yr}$ | ( R /m <sup>3</sup> ) | $10^3 \text{ R/year}$ | Costs                     |
| Unbilled Consumption          | 210                          | 2.70              | 567                   | 1.26                      | 8                            | 20.07                 | 166                   | 1.63                      |
| Apparent Losses:              | 550                          | 2.70              | 1485                  | 3.30                      | 26                           | 20.07                 | 514                   | 5.06                      |
| Real Losses:                  | 2200                         | 0.15              | 330                   | 0.73                      | 125                          | 7.88                  | 985                   | 9.69                      |
| Total Unbilled:               | 2960                         |                   | 2382                  | 5.29                      | 159                          |                       | 1665                  | 16.38                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                 |                                       |                                  |
|---------------------------------------|----------------------------------|-------------------------------------------------|---------------------------------------|----------------------------------|
| System<br>Input<br>Volume<br>=<br>633 | Total<br>Consumption<br>=<br>507 | Billed<br>Authorised<br>Consumption<br>=<br>473 | Authorised<br>Consumption<br>=<br>481 | Revenue<br>Water<br><br>473      |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>8 |                                       | Non-Revenue<br>Water<br>=<br>160 |
|                                       |                                  | Apparent<br>Losses<br>=<br>26                   | Total<br>Losses<br>=<br>152           |                                  |
|                                       | Real<br>Losses<br>=<br>126       |                                                 |                                       |                                  |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 633              | Litres/conn/day |
| Total Consumption   | from D7b    | 507              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 126              | Litres/conn/day |

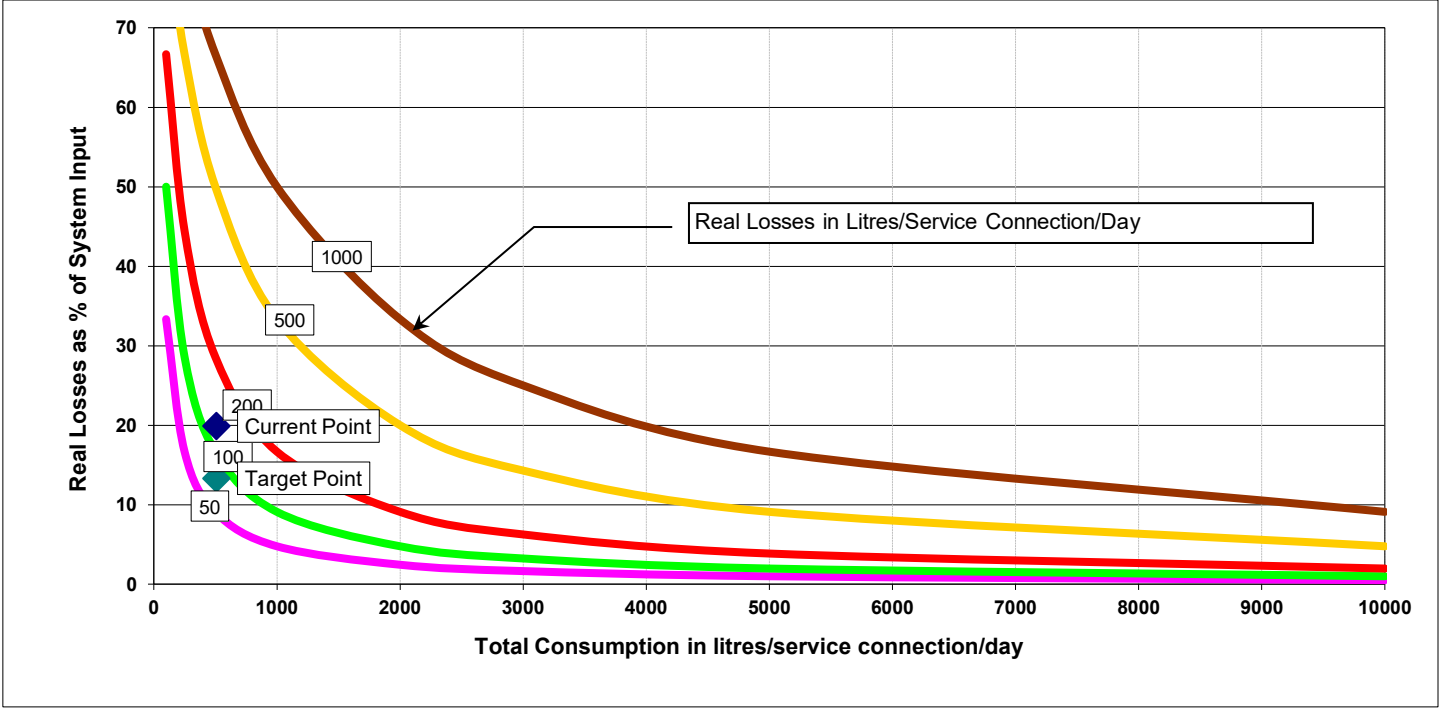
|                          |                                 |    |   |
|--------------------------|---------------------------------|----|---|
| ARL as % of System Input | ARL / System input volume x 100 | 20 | % |
|--------------------------|---------------------------------|----|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 39               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 78               | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 126              | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | 48               | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 13 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection for different values of Real Losses in litres/service connection/day



SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Riebeek Kasteel)          |                           |
| Name of Water Supply System | Voëlvllei Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 147       | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 48        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 456       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 3.0       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 29        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 19        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customet meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 46        | Metres          |
| Density of connections     | 20            | 45     | 120  | 73        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 279489  | 0.46              | 72.1                     |
| Apparent Losses                          | 18426   | 0.03              | 4.8                      |
| Actual Consumption excluding exports     | 297915  | 0.49              | 76.8                     |
| Real Losses                              | 89963   | 0.15              | 23.2                     |
| System Input Volume                      | 387878  | 0.63              | 100.0                    |



DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Riebeek Kasteel)          |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 23          | km     |
| Number of Service Connections                        | Ns       | 60000        | 1680        | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 73          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 46          | metres |
| Population served by the supply system               | Pop      | 100000       | 11473       | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 1680

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                                                         | Calculation                                                        | Example Result | Actual Data | Units                        |
|-----------------------------------------------------------------|--------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains                                                        | $18 \times Lm \times P \times 365 \times T/10^8$                   | 443            | 7           | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections                                          | $0.8 \times Ns \times P \times 365 \times T/10^8$                  | 788            | 23          | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL                                            |                                                                    | 1232           | 30          | $10^3 \text{ m}^3/\text{yr}$ |
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (Ns \times 365 \times T/100)$ | 56             | 48          | Litres/ conn./day            |

D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    |                                            |                                 |                                    |                                              |                                          |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 388                                        |                                 |                                    |                                              | 388                                      |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 388                                        |                                 |                                    |                                              | 388                                      |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 253                                               |                                                     |                                                     | 4                                                     | 257                                      |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 13                                                |                                                     |                                                     |                                                       | 13                                       |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):<br>Other            |                                                   |                                                     |                                                     |                                                       |                                          | 8                                                 |                                                     |                                                     |                                                       | 8                                        |
| Other (specify):<br>Farms            |                                                   |                                                     |                                                     |                                                       |                                          | 1                                                 |                                                     |                                                     |                                                       | 1                                        |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 275                                               |                                                     |                                                     | 5                                                     | 279                                      |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 108           | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 18            | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |    |                                    |
|-----------------------------------------------------------|------|----|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 90 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|----|------------------------------------|

D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 147           | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 456           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 3.03          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result               |                              |                   | Actual Result                |                              |                   |
|-------------------------------|------------------------------|------------------------------|-------------------|------------------------------|------------------------------|-------------------|
|                               | Volume                       | System Input                 | % of System Input | Volume                       | System Input                 | % of System Input |
|                               | $10^3 \text{ m}^3/\text{yr}$ | $10^3 \text{ m}^3/\text{yr}$ |                   | $10^3 \text{ m}^3/\text{yr}$ | $10^3 \text{ m}^3/\text{yr}$ |                   |
| Unbilled Consumption          | 210                          | 38000                        | 0.55              | 5                            | 388                          | 1.22              |
| Apparent Losses:              | 550                          | 38000                        | 1.45              | 18                           | 388                          | 4.75              |
| Real Losses:                  | 2200                         | 38000                        | 5.79              | 90                           | 388                          | 23.19             |
| Total Unbilled:               | 2960                         | 38000                        | 7.79              | 113                          | 388                          | 29.17             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                 |
|----------------------------------------------------------|--------------|-------------|-----------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 6273        | $10^3 \text{ R/year}$ |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result               |                   |                       |                           | Actual Result                |                       |                       |                           |
|-------------------------------|------------------------------|-------------------|-----------------------|---------------------------|------------------------------|-----------------------|-----------------------|---------------------------|
|                               | Volume                       | Unit Value        | Value                 | % of Annual Running Costs | Volume                       | Unit Value            | Value                 | % of Annual Running Costs |
|                               | $10^3 \text{ m}^3/\text{yr}$ | R /m <sup>3</sup> | $10^3 \text{ R/year}$ | Costs                     | $10^3 \text{ m}^3/\text{yr}$ | ( R /m <sup>3</sup> ) | $10^3 \text{ R/year}$ | Costs                     |
| Unbilled Consumption          | 210                          | 2.70              | 567                   | 1.26                      | 5                            | 20.07                 | 95                    | 1.52                      |
| Apparent Losses:              | 550                          | 2.70              | 1485                  | 3.30                      | 18                           | 20.07                 | 370                   | 5.90                      |
| Real Losses:                  | 2200                         | 0.15              | 330                   | 0.73                      | 90                           | 7.88                  | 709                   | 11.30                     |
| Total Unbilled:               | 2960                         |                   | 2382                  | 5.29                      | 113                          |                       | 1174                  | 18.71                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                 |                                       |                                  |
|---------------------------------------|----------------------------------|-------------------------------------------------|---------------------------------------|----------------------------------|
| System<br>Input<br>Volume<br>=<br>633 | Total<br>Consumption<br>=<br>486 | Billed<br>Authorised<br>Consumption<br>=<br>448 | Authorised<br>Consumption<br>=<br>456 | Revenue<br>Water<br><br>448      |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>8 |                                       | Non-Revenue<br>Water<br>=<br>184 |
|                                       |                                  | Apparent<br>Losses<br>=<br>30                   | Total<br>Losses<br>=<br>177           |                                  |
|                                       | Real<br>Losses<br>=<br>147       |                                                 |                                       |                                  |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 633              | Litres/conn/day |
| Total Consumption   | from D7b    | 486              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 147              | Litres/conn/day |

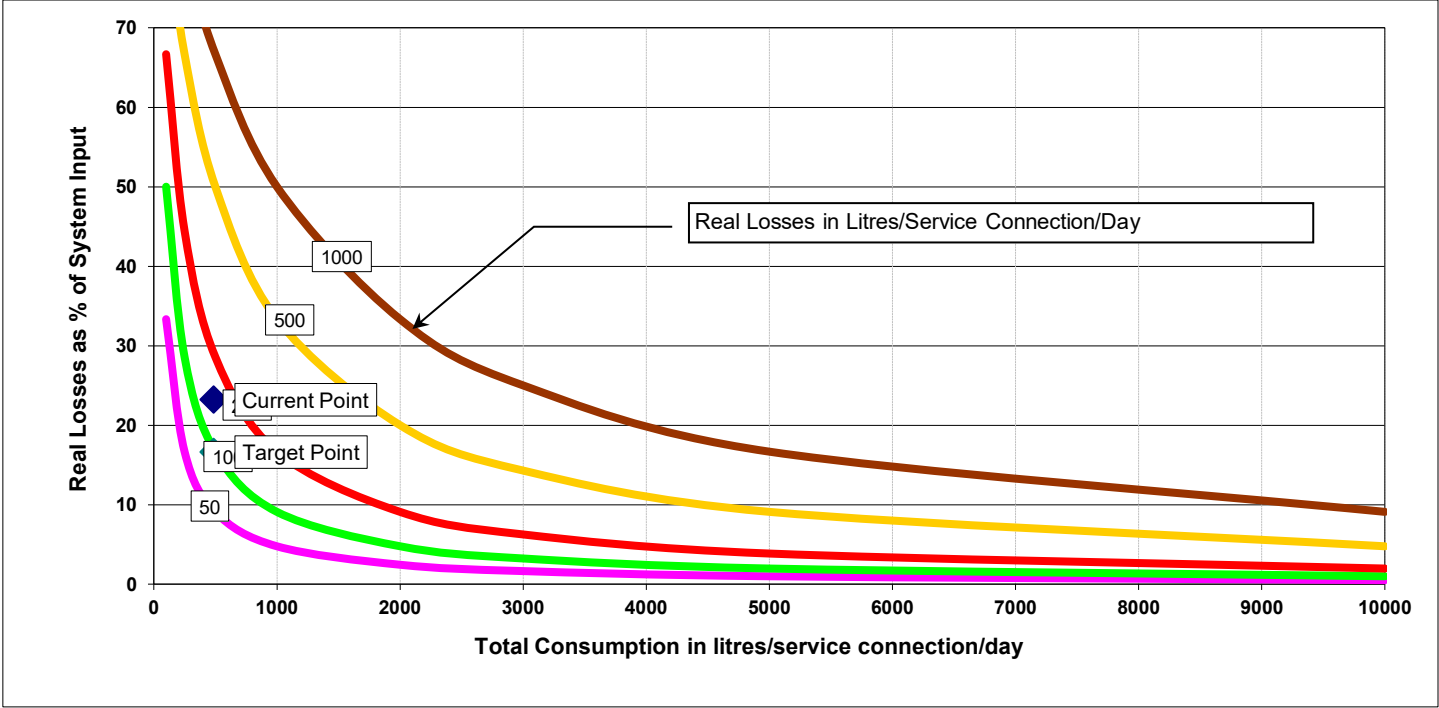
|                          |                                 |    |   |
|--------------------------|---------------------------------|----|---|
| ARL as % of System Input | ARL / System input volume x 100 | 23 | % |
|--------------------------|---------------------------------|----|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 48               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 97               | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 147              | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | 50               | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 17 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection/day, for different values of Real Losses in litres/service connection/day





SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Riebeek West)             |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 24        | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 58        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 466       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 0.4       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 12        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 11        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customet meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 49        | Metres          |
| Density of connections     | 20            | 45     | 120  | 48        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 180734  | 0.47              | 94.2                     |
| Apparent Losses                          | 1876    | 0.00              | 1.0                      |
| Actual Consumption excluding exports     | 182610  | 0.47              | 95.2                     |
| Real Losses                              | 9161    | 0.02              | 4.8                      |
| System Input Volume                      | 191771  | 0.49              | 100.0                    |

DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Riebeek West)             |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 22          | km     |
| Number of Service Connections                        | Ns       | 60000        | 1063        | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 48          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 49          | metres |
| Population served by the supply system               | Pop      | 100000       | 9822        | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 1063

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                                                         | Calculation                                                                        | Example Result | Actual Data | Units                        |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains                                                        | $18 \times \text{Lm} \times \text{P} \times 365 \times \text{T} / 10^8$            | 443            | 7           | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections                                          | $0.8 \times \text{Ns} \times \text{P} \times 365 \times \text{T} / 10^8$           | 788            | 15          | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL                                            |                                                                                    | 1232           | 22          | $10^3 \text{ m}^3/\text{yr}$ |
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (\text{Ns} \times 365 \times \text{T} / 100)$ | 56             | 58          | Litres/ conn./day            |

D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    |                                            |                                 |                                    |                                              |                                          |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 192                                        |                                 |                                    |                                              | 192                                      |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 192                                        |                                 |                                    |                                              | 192                                      |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 131                                               |                                                     |                                                     | 12                                                    | 143                                      |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 16                                                |                                                     |                                                     |                                                       | 16                                       |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):                     |                                                   |                                                     |                                                     |                                                       |                                          | 21                                                |                                                     |                                                     |                                                       | 21                                       |
| Other (specify):                     |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 169                                               |                                                     |                                                     | 12                                                    | 181                                      |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 11            | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 2             | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |   |                                    |
|-----------------------------------------------------------|------|---|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 9 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|---|------------------------------------|



D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 24            | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 466           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 0.41          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result                     |                                    |                   | Actual Result                      |                                    |                   |
|-------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------|------------------------------------|-------------------|
|                               | Volume                             | System Input                       | % of System Input | Volume                             | System Input                       | % of System Input |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   |
| Unbilled Consumption          | 210                                | 38000                              | 0.55              | 12                                 | 192                                | 6.30              |
| Apparent Losses:              | 550                                | 38000                              | 1.45              | 2                                  | 192                                | 0.98              |
| Real Losses:                  | 2200                               | 38000                              | 5.79              | 9                                  | 192                                | 4.78              |
| Total Unbilled:               | 2960                               | 38000                              | 7.79              | 23                                 | 192                                | 12.06             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                  |
|----------------------------------------------------------|--------------|-------------|------------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 3101        | 10 <sup>3</sup> R/year |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result                     |                   |                        |                           | Actual Result                      |                       |                        |                           |
|-------------------------------|------------------------------------|-------------------|------------------------|---------------------------|------------------------------------|-----------------------|------------------------|---------------------------|
|                               | Volume                             | Unit Value        | Value                  | % of Annual Running Costs | Volume                             | Unit Value            | Value                  | % of Annual Running Costs |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | R /m <sup>3</sup> | 10 <sup>3</sup> R/year | Costs                     | 10 <sup>3</sup> m <sup>3</sup> /yr | ( R /m <sup>3</sup> ) | 10 <sup>3</sup> R/year | Costs                     |
| Unbilled Consumption          | 210                                | 2.70              | 567                    | 1.26                      | 12                                 | 20.07                 | 243                    | 7.82                      |
| Apparent Losses:              | 550                                | 2.70              | 1485                   | 3.30                      | 2                                  | 20.07                 | 38                     | 1.21                      |
| Real Losses:                  | 2200                               | 0.15              | 330                    | 0.73                      | 9                                  | 7.88                  | 72                     | 2.33                      |
| Total Unbilled:               | 2960                               |                   | 2382                   | 5.29                      | 23                                 |                       | 352                    | 11.36                     |



D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                  |                                       |                                 |
|---------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------|---------------------------------|
| System<br>Input<br>Volume<br>=<br>494 | Total<br>Consumption<br>=<br>471 | Billed<br>Authorised<br>Consumption<br>=<br>435  | Authorised<br>Consumption<br>=<br>466 | Revenue<br>Water<br><br>435     |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>31 |                                       | Non-Revenue<br>Water<br>=<br>60 |
|                                       |                                  | Apparent<br>Losses<br>=<br>5                     | Total<br>Losses<br>=<br>28            |                                 |
|                                       | Real<br>Losses<br>=<br>24        |                                                  |                                       |                                 |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 494              | Litres/conn/day |
| Total Consumption   | from D7b    | 471              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 24               | Litres/conn/day |

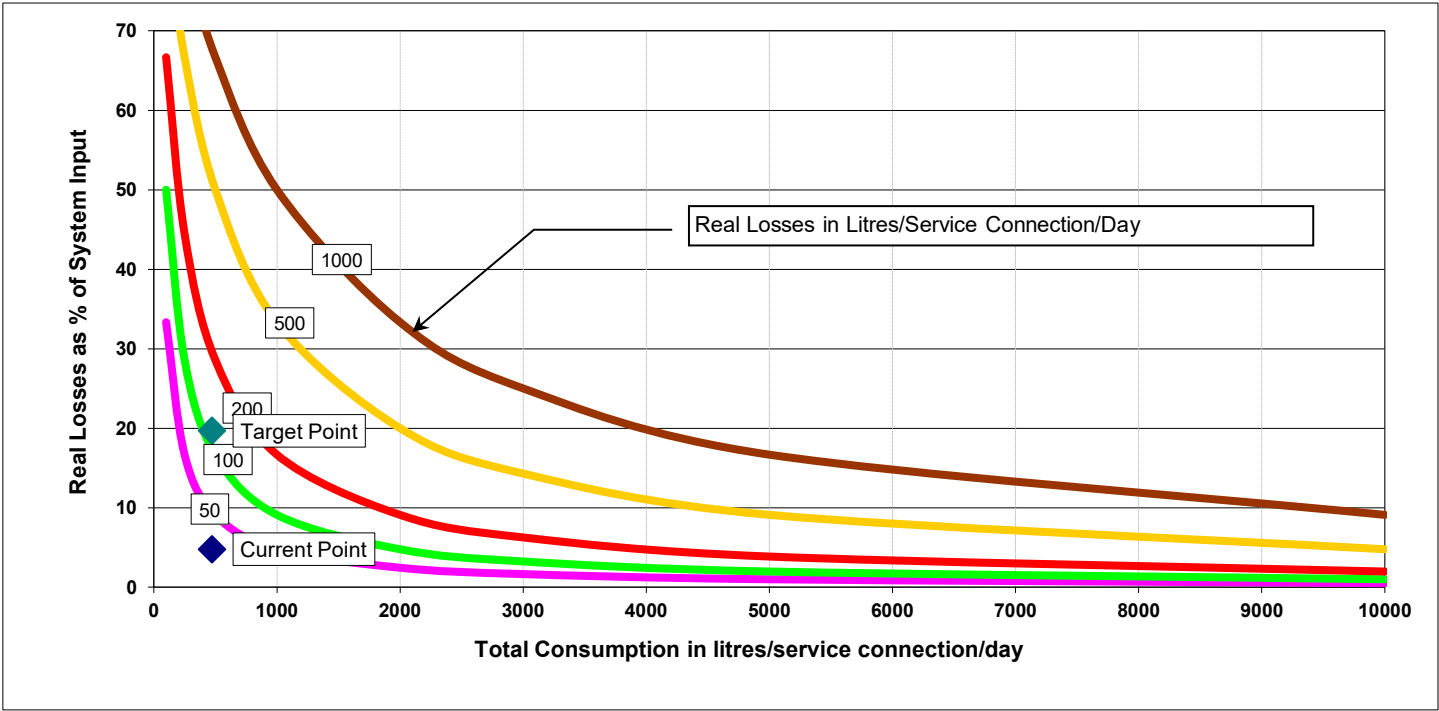
|                          |                                 |   |   |
|--------------------------|---------------------------------|---|---|
| ARL as % of System Input | ARL / System input volume x 100 | 5 | % |
|--------------------------|---------------------------------|---|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 58               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 115              | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 24               | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | -92              | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 20 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection/day, for different values of Real Losses in litres/service connection/day



SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                     |                           |
|-----------------------------|-----------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Koringberg)                 |                           |
| Name of Water Supply System | Misverstand Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                                | Mr E de Jager             |
|                             | Address                                             | Private Bag X52           |
|                             |                                                     | Malmesbury                |
|                             |                                                     | 7299                      |
|                             | Telephone                                           | +27(22) 487 9400          |
|                             | Fax                                                 | +27(22) 487 9440          |
|                             | E-mail                                              | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 62        | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 44        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 429       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 1.4       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 17        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 12        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customet meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 34        | Metres          |
| Density of connections     | 20            | 45     | 120  | 36        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 58546   | 0.43              | 85.1                     |
| Apparent Losses                          | 1744    | 0.01              | 2.5                      |
| Actual Consumption excluding exports     | 60289   | 0.44              | 87.6                     |
| Real Losses                              | 8513    | 0.06              | 12.4                     |
| System Input Volume                      | 68802   | 0.50              | 100.0                    |

DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                     |                           |
|-----------------------------|-----------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Koringberg)                 |                           |
| Name of Water Supply System | Misverstand Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                                | Mr E de Jager             |
|                             | Address                                             | Private Bag X52           |
|                             |                                                     | Malmesbury                |
|                             |                                                     | 7299                      |
|                             | Telephone                                           | +27(22) 487 9400          |
|                             | Fax                                                 | +27(22) 487 9440          |
|                             | E-mail                                              | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 10          | km     |
| Number of Service Connections                        | Ns       | 60000        | 374         | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 36          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 34          | metres |
| Population served by the supply system               | Pop      | 100000       | 2021        | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 374

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                                                         | Calculation                                                        | Example Result | Actual Data | Units                        |
|-----------------------------------------------------------------|--------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains                                                        | $18 \times Lm \times P \times 365 \times T/10^8$                   | 443            | 2           | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections                                          | $0.8 \times Ns \times P \times 365 \times T/10^8$                  | 788            | 4           | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL                                            |                                                                    | 1232           | 6           | $10^3 \text{ m}^3/\text{yr}$ |
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (Ns \times 365 \times T/100)$ | 56             | 44          | Litres/ conn./day            |



D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    |                                            |                                 |                                    |                                              |                                          |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 69                                         |                                 |                                    |                                              | 69                                       |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 69                                         |                                 |                                    |                                              | 69                                       |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 48                                                |                                                     |                                                     | 2                                                     | 49                                       |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 6                                                 |                                                     |                                                     |                                                       | 6                                        |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):                     |                                                   |                                                     |                                                     |                                                       |                                          | 3                                                 |                                                     |                                                     |                                                       | 3                                        |
| Other                                |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):                     |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 57                                                |                                                     |                                                     | 2                                                     | 59                                       |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 10            | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 2             | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |   |                                    |
|-----------------------------------------------------------|------|---|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 9 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|---|------------------------------------|



D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 62            | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 429           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 1.40          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result                     |                                    |                   | Actual Result                      |                                    |                   |
|-------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------|------------------------------------|-------------------|
|                               | Volume                             | System Input                       | % of System Input | Volume                             | System Input                       | % of System Input |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   |
| Unbilled Consumption          | 210                                | 38000                              | 0.55              | 2                                  | 69                                 | 2.55              |
| Apparent Losses:              | 550                                | 38000                              | 1.45              | 2                                  | 69                                 | 2.53              |
| Real Losses:                  | 2200                               | 38000                              | 5.79              | 9                                  | 69                                 | 12.37             |
| Total Unbilled:               | 2960                               | 38000                              | 7.79              | 12                                 | 69                                 | 17.46             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                  |
|----------------------------------------------------------|--------------|-------------|------------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 1113        | 10 <sup>3</sup> R/year |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result                     |                   |                        |                           | Actual Result                      |                       |                        |                           |
|-------------------------------|------------------------------------|-------------------|------------------------|---------------------------|------------------------------------|-----------------------|------------------------|---------------------------|
|                               | Volume                             | Unit Value        | Value                  | % of Annual Running Costs | Volume                             | Unit Value            | Value                  | % of Annual Running Costs |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | R /m <sup>3</sup> | 10 <sup>3</sup> R/year | Costs                     | 10 <sup>3</sup> m <sup>3</sup> /yr | ( R /m <sup>3</sup> ) | 10 <sup>3</sup> R/year | Costs                     |
| Unbilled Consumption          | 210                                | 2.70              | 567                    | 1.26                      | 2                                  | 20.07                 | 35                     | 3.17                      |
| Apparent Losses:              | 550                                | 2.70              | 1485                   | 3.30                      | 2                                  | 20.07                 | 35                     | 3.14                      |
| Real Losses:                  | 2200                               | 0.15              | 330                    | 0.73                      | 9                                  | 7.88                  | 67                     | 6.03                      |
| Total Unbilled:               | 2960                               |                   | 2382                   | 5.29                      | 12                                 |                       | 137                    | 12.34                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                  |                                       |                                 |
|---------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------|---------------------------------|
| System<br>Input<br>Volume<br>=<br>504 | Total<br>Consumption<br>=<br>442 | Billed<br>Authorised<br>Consumption<br>=<br>416  | Authorised<br>Consumption<br>=<br>429 | Revenue<br>Water<br><br>416     |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>13 |                                       | Non-Revenue<br>Water<br>=<br>88 |
|                                       |                                  | Apparent<br>Losses<br>=<br>13                    | Total<br>Losses<br>=<br>75            |                                 |
|                                       | Real<br>Losses<br>=<br>62        |                                                  |                                       |                                 |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 504              | Litres/conn/day |
| Total Consumption   | from D7b    | 442              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 62               | Litres/conn/day |

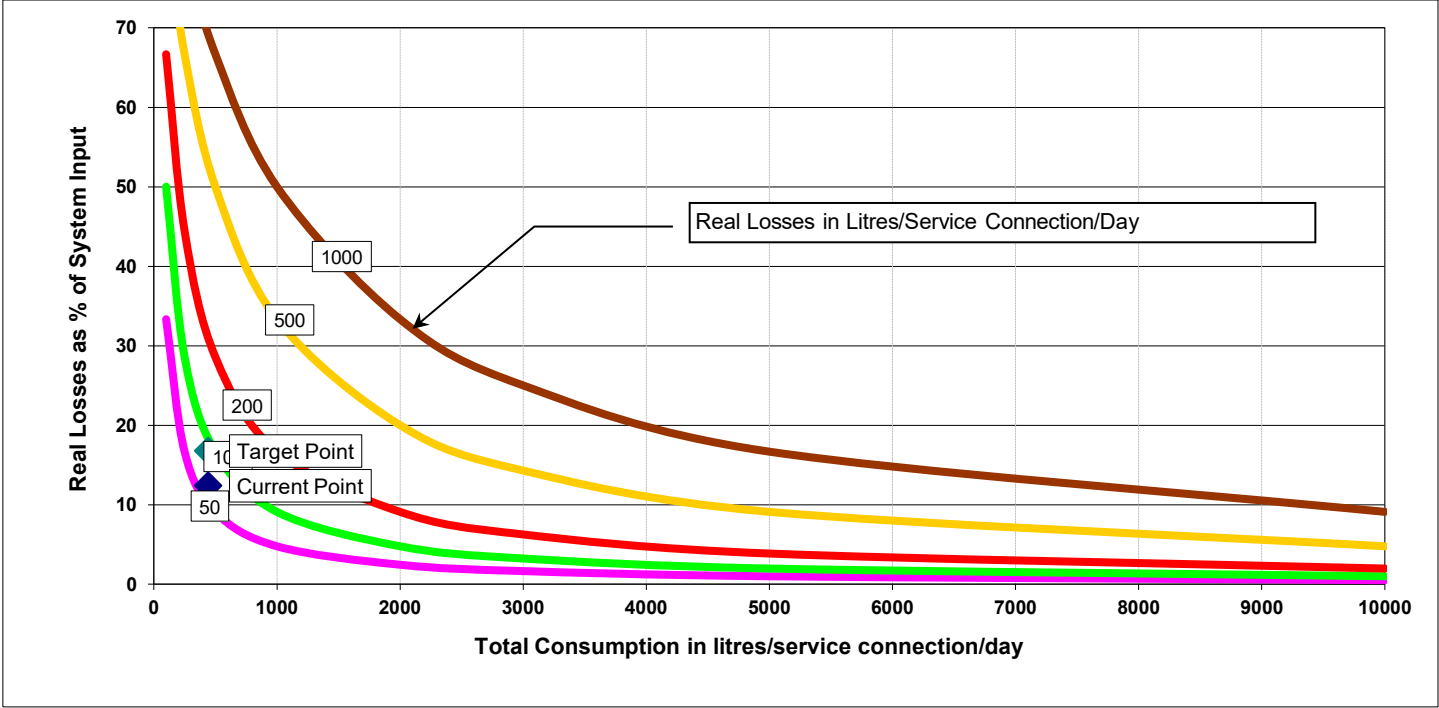
|                          |                                 |    |   |
|--------------------------|---------------------------------|----|---|
| ARL as % of System Input | ARL / System input volume x 100 | 12 | % |
|--------------------------|---------------------------------|----|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 44               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 89               | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 62               | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | -26              | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 17 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection for different values of Real Losses in litres/service connection/day



SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Yzerfontein)              |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 37        | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 70        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 463       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL ; see note 4)                   | 1             | 2          | >3.0 | 0.5       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 13        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 10        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customer meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 60        | Metres          |
| Density of connections     | 20            | 45     | 120  | 49        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 319765  | 0.46              | 91.2                     |
| Apparent Losses                          | 5257    | 0.01              | 1.5                      |
| Actual Consumption excluding exports     | 325023  | 0.47              | 92.7                     |
| Real Losses                              | 25667   | 0.04              | 7.3                      |
| System Input Volume                      | 350690  | 0.51              | 100.0                    |



DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                   |                           |
|-----------------------------|---------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality (Yzerfontein)              |                           |
| Name of Water Supply System | Voëlville Scheme West Coast District Municipality |                           |
| Contact Details:            | Name                                              | Mr E de Jager             |
|                             | Address                                           | Private Bag X52           |
|                             |                                                   | Malmesbury                |
|                             |                                                   | 7299                      |
|                             | Telephone                                         | +27(22) 487 9400          |
|                             | Fax                                               | +27(22) 487 9440          |
|                             | E-mail                                            | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 39          | km     |
| Number of Service Connections                        | Ns       | 60000        | 1892        | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 49          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 60          | metres |
| Population served by the supply system               | Pop      | 100000       | 1898        | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 1892

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                | Calculation                                       | Example Result | Actual Data | Units                        |
|------------------------|---------------------------------------------------|----------------|-------------|------------------------------|
| On mains               | $18 \times Lm \times P \times 365 \times T/10^8$  | 443            | 15          | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections | $0.8 \times Ns \times P \times 365 \times T/10^8$ | 788            | 33          | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL   |                                                   | 1232           | 48          | $10^3 \text{ m}^3/\text{yr}$ |

|                                                                 |                                                                    |    |    |                   |
|-----------------------------------------------------------------|--------------------------------------------------------------------|----|----|-------------------|
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (Ns \times 365 \times T/100)$ | 56 | 70 | Litres/ conn./day |
|-----------------------------------------------------------------|--------------------------------------------------------------------|----|----|-------------------|

D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2024  |
|                                        | End Date   | March 31, 1999 | June 30, 2025 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    |                                            |                                 |                                    |                                              |                                          |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 351                                        |                                 |                                    |                                              | 351                                      |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 351                                        |                                 |                                    |                                              | 351                                      |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 276                                               |                                                     |                                                     | 13                                                    | 289                                      |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 18                                                |                                                     |                                                     |                                                       | 18                                       |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 0                                                     | 0                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):<br>Other            |                                                   |                                                     |                                                     |                                                       |                                          | 13                                                |                                                     |                                                     |                                                       | 13                                       |
| Other (specify):<br>Farm             |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 306                                               |                                                     |                                                     | 13                                                    | 320                                      |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 31            | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 5             | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |    |                                    |
|-----------------------------------------------------------|------|----|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 26 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|----|------------------------------------|



D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 37            | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 463           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 0.53          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result                     |                                    |                   | Actual Result                      |                                    |                   |
|-------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------|------------------------------------|-------------------|
|                               | Volume                             | System Input                       | % of System Input | Volume                             | System Input                       | % of System Input |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   |
| Unbilled Consumption          | 210                                | 38000                              | 0.55              | 13                                 | 351                                | 3.79              |
| Apparent Losses:              | 550                                | 38000                              | 1.45              | 5                                  | 351                                | 1.50              |
| Real Losses:                  | 2200                               | 38000                              | 5.79              | 26                                 | 351                                | 7.32              |
| Total Unbilled:               | 2960                               | 38000                              | 7.79              | 44                                 | 351                                | 12.61             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                  |
|----------------------------------------------------------|--------------|-------------|------------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 5672        | 10 <sup>3</sup> R/year |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result                     |                   |                        |                           | Actual Result                      |                       |                        |                           |
|-------------------------------|------------------------------------|-------------------|------------------------|---------------------------|------------------------------------|-----------------------|------------------------|---------------------------|
|                               | Volume                             | Unit Value        | Value                  | % of Annual Running Costs | Volume                             | Unit Value            | Value                  | % of Annual Running Costs |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | R /m <sup>3</sup> | 10 <sup>3</sup> R/year | Costs                     | 10 <sup>3</sup> m <sup>3</sup> /yr | ( R /m <sup>3</sup> ) | 10 <sup>3</sup> R/year | Costs                     |
| Unbilled Consumption          | 210                                | 2.70              | 567                    | 1.26                      | 13                                 | 20.07                 | 267                    | 4.71                      |
| Apparent Losses:              | 550                                | 2.70              | 1485                   | 3.30                      | 5                                  | 20.07                 | 106                    | 1.86                      |
| Real Losses:                  | 2200                               | 0.15              | 330                    | 0.73                      | 26                                 | 7.88                  | 202                    | 3.57                      |
| Total Unbilled:               | 2960                               |                   | 2382                   | 5.29                      | 44                                 |                       | 575                    | 10.13                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                  |                                       |                                 |
|---------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------|---------------------------------|
| System<br>Input<br>Volume<br>=<br>508 | Total<br>Consumption<br>=<br>471 | Billed<br>Authorised<br>Consumption<br>=<br>444  | Authorised<br>Consumption<br>=<br>463 | Revenue<br>Water<br><br>444     |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>19 |                                       | Non-Revenue<br>Water<br>=<br>64 |
|                                       |                                  | Apparent<br>Losses<br>=<br>8                     | Total<br>Losses<br>=<br>45            |                                 |
|                                       | Real<br>Losses<br>=<br>37        |                                                  |                                       |                                 |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 508              | Litres/conn/day |
| Total Consumption   | from D7b    | 471              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 37               | Litres/conn/day |

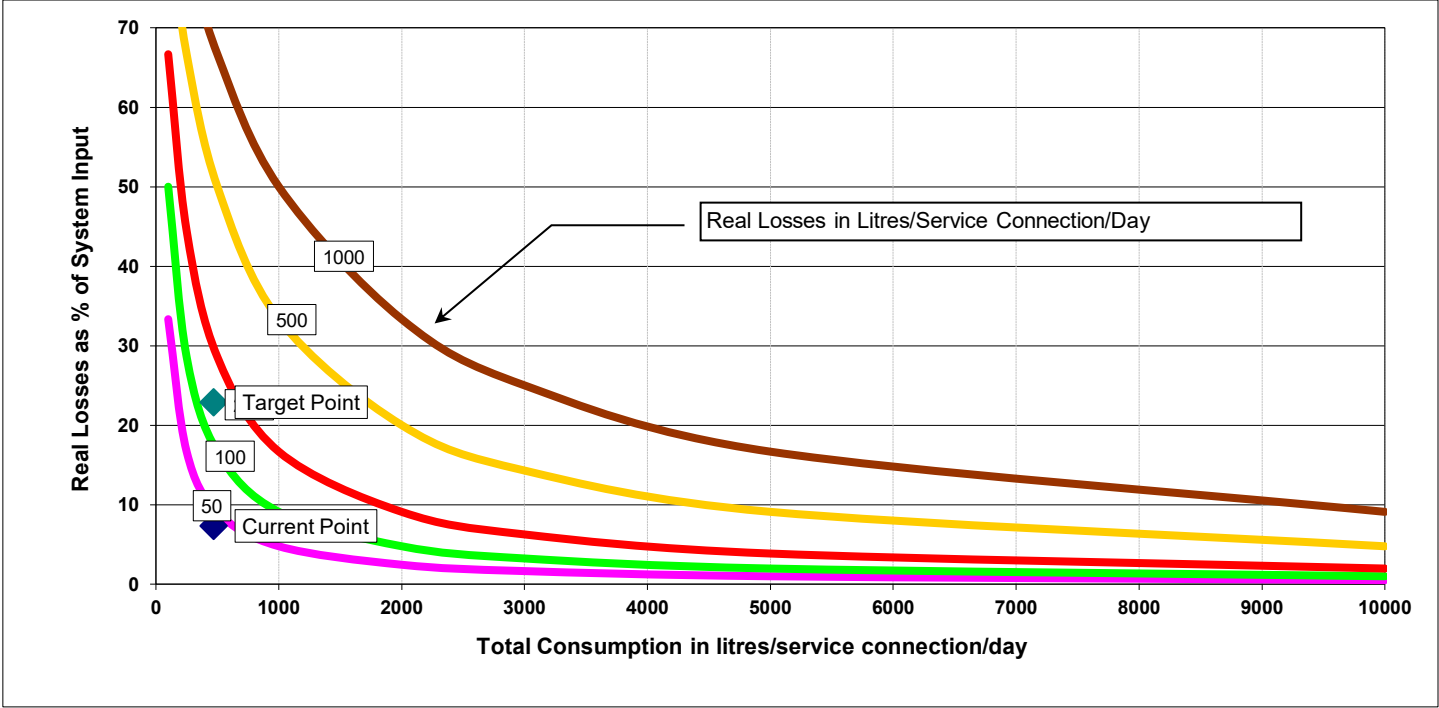
|                          |                                 |   |   |
|--------------------------|---------------------------------|---|---|
| ARL as % of System Input | ARL / System input volume x 100 | 7 | % |
|--------------------------|---------------------------------|---|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 70               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 140              | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 37               | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | -103             | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 23 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection/day, for different values of Real Losses in litres/service connection/day



SUMMARY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

P09260

S1. SYSTEM NAME AND CONTACT DETAILS

|                             |                                                                                              |                           |
|-----------------------------|----------------------------------------------------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality                                                                       |                           |
| Name of Water Supply System | Voëlville and Misverstand Schemes West Coast District Municipality, Paardeberg Dam, Borehole |                           |
| Contact Details:            | Name                                                                                         | Mr E de Jager             |
|                             | Address                                                                                      | Private Bag X52           |
|                             |                                                                                              | Malmesbury                |
|                             |                                                                                              | 7299                      |
|                             | Telephone                                                                                    | +27(22) 487 9400          |
|                             | Fax                                                                                          | +27(22) 487 9440          |
|                             | E-mail                                                                                       | dejagere@swartland.org.za |

S2. Performance Indicators of Water Loss

| Viewpoint                                                        | Level    | Parameter                                                                           | Typical Range |            |      | Actual PI | Units                 |
|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|---------------|------------|------|-----------|-----------------------|
|                                                                  |          |                                                                                     | Excellent     | Good       | Poor |           |                       |
| Operations management of distribution system at current pressure | Basic    | % of year system is pressurised                                                     | 100           | 100        | <100 | 100       | %                     |
|                                                                  |          | Current Annual Real Losses (CARL)<br>(when system is pressurised - see note 2)      | 30 to 100     | 100 to 200 | >200 | 124       | Litres/connection/day |
|                                                                  | Detailed | Unavoidable Annual Real Losses (UARL)<br>(see note 3)                               | n/a           | n/a        | n/a  | 47        | Litres/connection/day |
|                                                                  |          | Consumption                                                                         | n/a           | n/a        | n/a  | 559       | Litres/connection/day |
|                                                                  |          | Infrastructure Leakage Index (ILI)<br>( = CARL/UARL : see note 4)                   | 1             | 2          | >3.0 | 2.7       | non dimensional       |
| Financial management aspects of water losses                     | Basic    | Volume of non-revenue water as a% of system input volume (see note 5)               | <10%          | 20%        | 30%  | 23        | %                     |
|                                                                  | Detailed | Value of non-revenue water as a % of annual cost of running the system (see note 6) | <5%           | 10%        | 15%  | 16        | %                     |

Notes:

Note1: taken from data in "AQUA" article, December 1999 or estimated by WRP

Note 2: takes account of % of time system is pressurised, but not system pressure, density of connections or customer meter location

Note 3: takes account of density of connections and customer meter location at current pressure

Note 4: measures overall efficiency of management of distribution system at current operating pressure

Note 5: strongly influenced by average consumption per service connection

Note 6: Allows different values of Rand/m3 for different components of non-revenue water

S3. Key Operating Parameters which influence Unavoidable Annual Real Losses (UARL)

| Variable                   | Typical Range |        |      | Actual PI | Units           |
|----------------------------|---------------|--------|------|-----------|-----------------|
|                            | Low           | Medium | High |           |                 |
| Average Operating Pressure | 30            | 45     | 100  | 40        | Metres          |
| Density of connections     | 20            | 45     | 120  | 49        | per km of mains |

4. Key Components of Annual System Input Volume

| Component                                | m3/year | m3/connection/day | % of System Input Volume |
|------------------------------------------|---------|-------------------|--------------------------|
| Water Exported                           |         | not applicable    |                          |
| Authorised Consumption excluding exports | 4814121 | 0.56              | 78.9                     |
| Apparent Losses                          | 218935  | 0.03              | 3.6                      |
| Actual Consumption excluding exports     | 5033056 | 0.58              | 82.5                     |
| Real Losses                              | 1068917 | 0.12              | 17.5                     |
| System Input Volume                      | 6101973 | 0.71              | 100.0                    |

DATA ENTRY SHEET FOR LEAKAGE BENCHMARKING IN SOUTH AFRICA

**Note:** Note: An example has been included to assist you in completing this data sheet. The example input data can be seen in the pale blue shaded areas. Your input data should appear in the pale yellow shaded areas. The light green shaded areas are protected calculation fields and nothing can be entered in these fields.  
Use the units as shown. If you have to use other units; you have to change the appropriate cells.

D1. GENERAL

|                             |                                                                                               |                           |
|-----------------------------|-----------------------------------------------------------------------------------------------|---------------------------|
| Name of Water Undertaking   | Swartland Municipality                                                                        |                           |
| Name of Water Supply System | Voëlville and Misverstand Schemes West Coast District Municipality, Paardeberg Dam, Boreholes |                           |
| Contact Details:            | Name                                                                                          | Mr E de Jager             |
|                             | Address                                                                                       | Private Bag X52           |
|                             |                                                                                               | Malmesbury                |
|                             |                                                                                               | 7299                      |
|                             | Telephone                                                                                     | +27(22) 487 9400          |
|                             | Fax                                                                                           | +27(22) 487 9440          |
|                             | E-mail                                                                                        | dejagere@swartland.org.za |

D2. SYSTEM DATA

| Input Description                                    | Variable | Example Data | Actual Data | Units  |
|------------------------------------------------------|----------|--------------|-------------|--------|
| Length of Mains (Transmission + Distribution)        | Lm       | 1500         | 478         | km     |
| Number of Service Connections                        | Ns       | 60000        | 23577       | Number |
| Density of Service Connections (per km of mains)     | Ns/Lm    | 40           | 49          | Per km |
| Percentage of time system is pressurised during year | T        | 100          | 100         | %      |
| Average operating pressure when system pressurised   | P        | 45           | 40          | metres |
| Population served by the supply system               | Pop      | 100000       | 142466      | Number |

See Notes 1 & 2

See Note 3

See Note 4

**Note 1:** The number of service connections is not always the same as the number of meters or billed accounts. For South African conditions, however, you can use the total of the number of metered accounts plus the estimated number of unmetered connections

**Note 2:** In South Africa customer meters are usually located close to the street/stand boundary. If this is not the case for your system, then add a note here.

Average number of consumer units for 2024/2025, as taken from the Financial System = 23577

**Note 3:** Use T in % eg. If T = 80%, use 80 and not 0.8

**Note 4:** If you do not have an accurate figure, please make a best estimate and provide brief details of how you derived it.

Water Master Plan

D3. UNAVOIDABLE ANNUAL REAL LOSSES (UARL)

| Details                | Calculation                                                            | Example Result | Actual Data | Units                        |
|------------------------|------------------------------------------------------------------------|----------------|-------------|------------------------------|
| On mains               | $18 \times \text{Lm} \times \text{P} \times 365 \times \text{T}/10^8$  | 443            | 126         | $10^3 \text{ m}^3/\text{yr}$ |
| On Service Connections | $0.8 \times \text{Ns} \times \text{P} \times 365 \times \text{T}/10^8$ | 788            | 275         | $10^3 \text{ m}^3/\text{yr}$ |
| Total Volume of UARL   |                                                                        | 1232           | 401         | $10^3 \text{ m}^3/\text{yr}$ |

|                                                                 |                                                                                  |    |    |                   |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------|----|----|-------------------|
| UARL in litres/service conn./day when the system is pressurised | Annual Volume of UARL $\times 10^6 / (\text{Ns} \times 365 \times \text{T}/100)$ | 56 | 47 | Litres/ conn./day |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------|----|----|-------------------|



D4. ANNUAL WATER BALANCE DATA

D4a. Data Period

| 12-MONTH PERIOD FOR WHICH DATA APPLIES |            | Example Data   | Actual Data   |
|----------------------------------------|------------|----------------|---------------|
|                                        | Start Date | April 1, 1998  | July 1, 2023  |
|                                        | End Date   | March 31, 1999 | June 30, 2024 |

D4b. System Input Volume

| Water Supplied        | Example Data                               |                                 |                                    |                                              |                                          | Actual Data                                |                                 |                                    |                                              |                                          |
|-----------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|------------------------------------|----------------------------------------------|------------------------------------------|
|                       | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Correction to Source Meter data |                                    | Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                       |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |                                            | +/- %                           | 10 <sup>3</sup> m <sup>3</sup> /yr |                                              |                                          |
| From Own Sources:     | 36000                                      | 2.00%                           | 720                                |                                              | 36720                                    | 0                                          |                                 |                                    |                                              | 0                                        |
| From Other Suppliers: | 1000                                       |                                 |                                    | 280                                          | 1280                                     | 6102                                       |                                 |                                    |                                              | 6102                                     |
| Total:                | 37000                                      |                                 | 720                                | 280                                          | 38000                                    | 6102                                       |                                 |                                    |                                              | 6102                                     |

D4c. Components of Authorised Consumption

| Components of Authorised Consumption | Example Data                                      |                                                     |                                                     |                                                       |                                          | Actual Data                                       |                                                     |                                                     |                                                       |                                          |
|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|------------------------------------------|
|                                      | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Billed Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Metered 10 <sup>3</sup> m <sup>3</sup> /yr | Unbilled Unmetered 10 <sup>3</sup> m <sup>3</sup> /yr | Total 10 <sup>3</sup> m <sup>3</sup> /yr |
|                                      |                                                   |                                                     |                                                     |                                                       |                                          |                                                   |                                                     |                                                     |                                                       |                                          |
| Water Exported:                      | 1500                                              |                                                     |                                                     |                                                       | 1500                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Households:                          | 24500                                             | 500                                                 |                                                     |                                                       | 25000                                    | 3319                                              |                                                     |                                                     | 119                                                   | 3438                                     |
| Non-households:                      | 6900                                              | 100                                                 |                                                     |                                                       | 7000                                     | 703                                               |                                                     |                                                     |                                                       | 703                                      |
| Standpipes:                          |                                                   | 500                                                 | 10                                                  |                                                       | 510                                      |                                                   |                                                     |                                                     |                                                       |                                          |
| Firefighting:                        |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 6                                                     | 6                                        |
| Mains Flushing:                      |                                                   |                                                     |                                                     | 100                                                   | 100                                      |                                                   |                                                     |                                                     | 6                                                     | 6                                        |
| Building water:                      | 1040                                              |                                                     |                                                     |                                                       | 1040                                     |                                                   |                                                     |                                                     |                                                       |                                          |
| Other (specify):<br>Other            |                                                   |                                                     |                                                     |                                                       |                                          | 559                                               |                                                     |                                                     |                                                       | 559                                      |
| Other (specify):<br>Farms            |                                                   |                                                     |                                                     |                                                       |                                          | 102                                               |                                                     |                                                     |                                                       | 102                                      |
| TOTALS:                              | 33940                                             | 1100                                                | 10                                                  | 200                                                   | 35250                                    | 4683                                              |                                                     |                                                     | 131                                                   | 4814                                     |

D4d. Components of Water Losses

| Details                                                               | Example Result | Actual Result | Units                              |
|-----------------------------------------------------------------------|----------------|---------------|------------------------------------|
| Water Losses = System Input – Authorised Consumption                  | 2750           | 1288          | 10 <sup>3</sup> m <sup>3</sup> /yr |
| Percentage of Total Losses estimated to represent the Apparent Losses | 20             | 17            | %                                  |
| Apparent Losses                                                       | 550            | 219           | 10 <sup>3</sup> m <sup>3</sup> /yr |

|                                                           |      |      |                                    |
|-----------------------------------------------------------|------|------|------------------------------------|
| Annual Real Losses (ARL) = Water Losses – Apparent Losses | 2200 | 1069 | 10 <sup>3</sup> m <sup>3</sup> /yr |
|-----------------------------------------------------------|------|------|------------------------------------|



D5. SELECTED OPERATIONAL PERFORMANCE INDICATORS

D5a. Current Annual Real Losses per Connection (CARL) at Current Pressures

| Details                                                                        | Calculation                                      | Example Result | Actual Result | Units             |
|--------------------------------------------------------------------------------|--------------------------------------------------|----------------|---------------|-------------------|
| CARL is expressed in Litres/service connection/day, when system is pressurised | $ARL \times 10^6 / (Ns \times T/100 \times 365)$ | 100            | 124           | Litres /conn./day |
| Consumption in litres/conn/day                                                 |                                                  | 1610           | 559           | Litres /conn./day |

D5b. Infrastructure Leakage Index (ILI)

| Details                                                                                 | Calculation   | Example Result | Actual Result |
|-----------------------------------------------------------------------------------------|---------------|----------------|---------------|
| ILI is the ratio of Current Annual Real Losses (CARL) to Unavoidable Annual Real Losses | $CARL / UARL$ | 1.79           | 2.67          |

D5c. Non-Revenue Water as a % by Volume of System Input

| Description of Unbilled Items | Example Result                     |                                    |                   | Actual Result                      |                                    |                   |
|-------------------------------|------------------------------------|------------------------------------|-------------------|------------------------------------|------------------------------------|-------------------|
|                               | Volume                             | System Input                       | % of System Input | Volume                             | System Input                       | % of System Input |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   | 10 <sup>3</sup> m <sup>3</sup> /yr | 10 <sup>3</sup> m <sup>3</sup> /yr |                   |
| Unbilled Consumption          | 210                                | 38000                              | 0.55              | 131                                | 6102                               | 2.15              |
| Apparent Losses:              | 550                                | 38000                              | 1.45              | 219                                | 6102                               | 3.59              |
| Real Losses:                  | 2200                               | 38000                              | 5.79              | 1069                               | 6102                               | 17.52             |
| Total Unbilled:               | 2960                               | 38000                              | 7.79              | 1419                               | 6102                               | 23.26             |

D6. SELECTED FINANCIAL PERFORMANCE INDICATORS

D6a. Local Valuation of Real and Apparent Losses

| Details                                            | Example Result | Actual Result | Units             |
|----------------------------------------------------|----------------|---------------|-------------------|
| Unit Value of Real Losses (eg bulk purchase price) | 0.15           | 7.88          | R /m <sup>3</sup> |
| Unit Value of Apparent Losses (eg selling price)   | 2.70           | 20.07         | R /m <sup>3</sup> |

D6b. Annual Cost of Running System

| Details                                                  | Example Cost | Actual Cost | Units                  |
|----------------------------------------------------------|--------------|-------------|------------------------|
| Annual Cost of running system in 1000's of Rand per year | 45000        | 98687       | 10 <sup>3</sup> R/year |

D6c. Non-Revenue Water as % by Value of Cost of Running System

| Description of Unbilled Items | Example Result                     |                   |                        |                           | Actual Result                      |                       |                        |                           |
|-------------------------------|------------------------------------|-------------------|------------------------|---------------------------|------------------------------------|-----------------------|------------------------|---------------------------|
|                               | Volume                             | Unit Value        | Value                  | % of Annual Running Costs | Volume                             | Unit Value            | Value                  | % of Annual Running Costs |
|                               | 10 <sup>3</sup> m <sup>3</sup> /yr | R /m <sup>3</sup> | 10 <sup>3</sup> R/year | Costs                     | 10 <sup>3</sup> m <sup>3</sup> /yr | ( R /m <sup>3</sup> ) | 10 <sup>3</sup> R/year | Costs                     |
| Unbilled Consumption          | 210                                | 2.70              | 567                    | 1.26                      | 131                                | 20.07                 | 2636                   | 2.67                      |
| Apparent Losses:              | 550                                | 2.70              | 1485                   | 3.30                      | 219                                | 20.07                 | 4394                   | 4.45                      |
| Real Losses:                  | 2200                               | 0.15              | 330                    | 0.73                      | 1069                               | 7.88                  | 8423                   | 8.54                      |
| Total Unbilled:               | 2960                               |                   | 2382                   | 5.29                      | 1419                               |                       | 15454                  | 15.66                     |

D7. RELATIONSHIP BETWEEN REAL LOSSES EXPRESSED AS % OF SYSTEM INPUT

D7a. Real losses curve definition

| Curve Definition                    |                                              |      |      |      |      |
|-------------------------------------|----------------------------------------------|------|------|------|------|
| Consumption<br>litres/serv conn/day | Real losses in litres/service connection/day |      |      |      |      |
|                                     | 50                                           | 100  | 200  | 500  | 1000 |
| 100                                 | 33.3                                         | 50.0 | 66.7 | 83.3 | 90.9 |
| 250                                 | 16.7                                         | 28.6 | 44.4 | 66.7 | 80.0 |
| 500                                 | 9.1                                          | 16.7 | 28.6 | 50.0 | 66.7 |
| 1000                                | 4.8                                          | 9.1  | 16.7 | 33.3 | 50.0 |
| 2000                                | 2.4                                          | 4.8  | 9.1  | 20.0 | 33.3 |
| 3000                                | 1.6                                          | 3.2  | 6.3  | 14.3 | 25.0 |
| 5000                                | 1.0                                          | 2.0  | 3.8  | 9.1  | 16.7 |
| 10000                               | 0.5                                          | 1.0  | 2.0  | 4.8  | 9.1  |

D7b. Components of water balance in litres/service connection/day (Actual Results)

|                                       |                                  |                                                  |                                       |                                  |
|---------------------------------------|----------------------------------|--------------------------------------------------|---------------------------------------|----------------------------------|
| System<br>Input<br>Volume<br>=<br>709 | Total<br>Consumption<br>=<br>585 | Billed<br>Authorised<br>Consumption<br>=<br>544  | Authorised<br>Consumption<br>=<br>559 | Revenue<br>Water<br><br>544      |
|                                       |                                  | Unbilled<br>Authorised<br>Consumption<br>=<br>15 |                                       | Non-Revenue<br>Water<br>=<br>165 |
|                                       |                                  | Apparent<br>Losses<br>=<br>25                    | Total<br>Losses<br>=<br>150           |                                  |
|                                       | Real<br>Losses<br>=<br>124       |                                                  |                                       |                                  |

D7c. Current Real Losses as % of System Input Volume

| Details             | Calculation | Actual<br>Result | Units           |
|---------------------|-------------|------------------|-----------------|
| System Input Volume | from D7b    | 709              | Litres/conn/day |
| Total Consumption   | from D7b    | 585              | Litres/conn/day |
| Annual Real Losses  | from D7b    | 124              | Litres/conn/day |

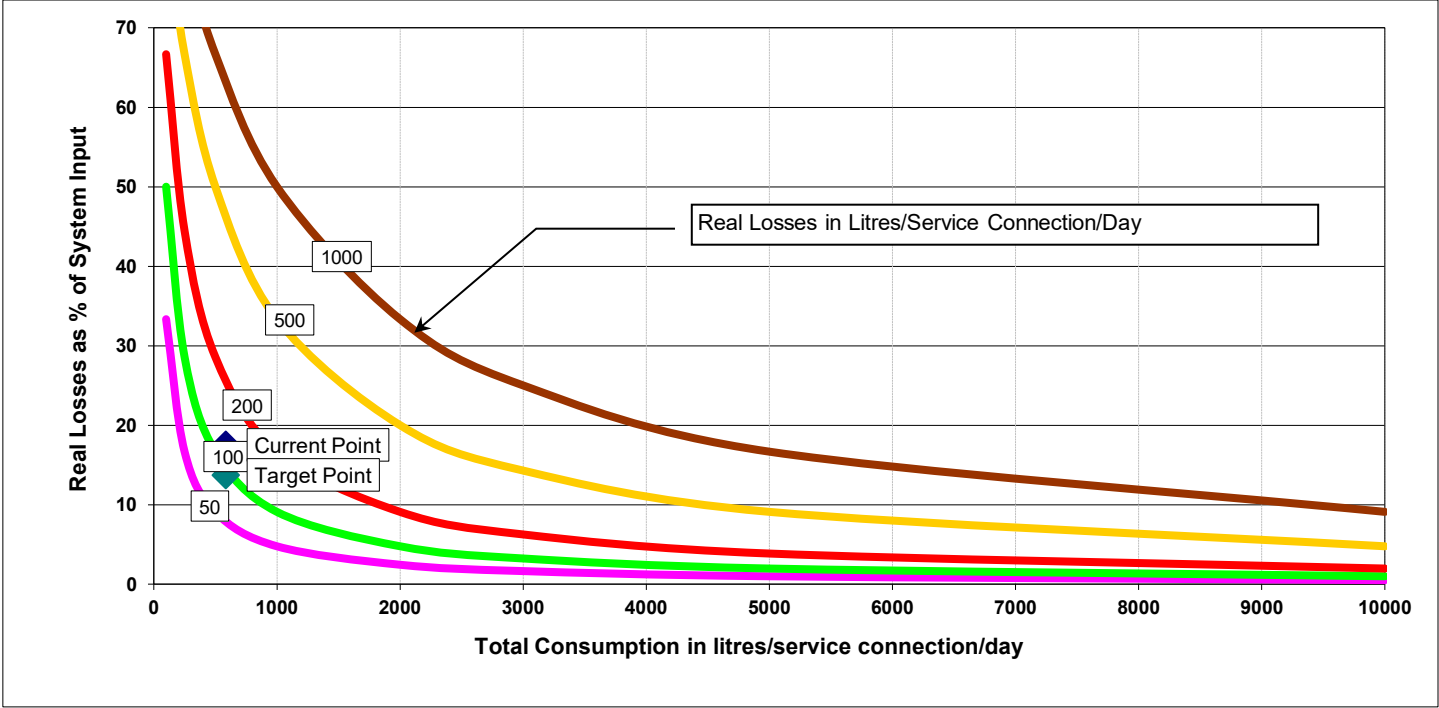
|                          |                                 |    |   |
|--------------------------|---------------------------------|----|---|
| ARL as % of System Input | ARL / System input volume x 100 | 18 | % |
|--------------------------|---------------------------------|----|---|

D7d. Potential Real Losses as % of System Input Volume

| Details                               | Calculation                  | Actual<br>Result | Units           |
|---------------------------------------|------------------------------|------------------|-----------------|
| Unavoidable Annual Real Losses (UARL) | from D3                      | 47               | Litres/conn/day |
| Target Loss Factor (TLF)              | User defined for each system | 2                | Dimensionless   |
| Target Annual Real Losses (TARL)      | TLF x UARL                   | 93               | Litres/conn/day |
| Current Annual Real Losses (CARL)     | CARL from D5a                | 124              | Litres/conn/day |
| Potential savings                     | CARL - TARL                  | 31               | Litres/conn/day |

|                                    |                                                      |    |   |
|------------------------------------|------------------------------------------------------|----|---|
| Potential ARL as % of System Input | TARL / (System input volume-Potential savings) x 100 | 14 | % |
|------------------------------------|------------------------------------------------------|----|---|

D7e. Real Losses as a % of System Input Volume versus Consumption in litres/service connection/day, for different values of Real Losses in litres/service connection/day



## **ANNEXURE C**

### **Future Water Requirement Projections for the various distribution systems**

| Malmesbury Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                                |         |
|------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|--------------------------------|---------|
| Parameter / Variable                                                         | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other and Farms <sup>(E)</sup> | Total   |
|                                                                              |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                                |         |
|                                                                              |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                                |         |
| Population <sup>(A)</sup>                                                    | 2024      | 26033                                                                           | 38086         | 18211      | 82330      | -                          | -                              | -       |
|                                                                              | 2029      | 28045                                                                           | 43091         | 31915      | 103050     |                            |                                |         |
|                                                                              | 2034      | 30212                                                                           | 48753         | 50137      | 129102     |                            |                                |         |
|                                                                              | 2039      | 32547                                                                           | 55160         | 74180      | 161887     |                            |                                |         |
|                                                                              | 2044      | 35062                                                                           | 62408         | 105713     | 203184     |                            |                                |         |
|                                                                              | 2049      | 37772                                                                           | 70609         | 146870     | 255251     |                            |                                |         |
| Growth (%/year)                                                              |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                                | -       |
|                                                                              | 2024-2029 | 1.50%                                                                           | 2.50%         | 11.87%     | 4.59%      | 4%                         | 2%                             |         |
|                                                                              | 2029-2034 | 1.50%                                                                           | 2.50%         | 9.45%      | 4.61%      | 4%                         | 2%                             |         |
|                                                                              | 2034-2039 | 1.50%                                                                           | 2.50%         | 8.15%      | 4.63%      | 4%                         | 2%                             |         |
|                                                                              | 2039-2044 | 1.50%                                                                           | 2.50%         | 7.34%      | 4.65%      | 4%                         | 2%                             |         |
|                                                                              | 2044-2049 | 1.50%                                                                           | 2.50%         | 6.80%      | 4.67%      | 4%                         | 2%                             |         |
| Unit Demand (l/c/d) <sup>(B)</sup>                                           | 2024      | 80.0                                                                            | 60.0          | 35.0       | -          | -                          | -                              | -       |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                 | 2024      | 2083                                                                            | 2285          | 637        | -          | 1300                       | 1490                           | 7795    |
|                                                                              | 2029      | 2244                                                                            | 2585          | 1117       |            | 1582                       | 1645                           | 9173    |
|                                                                              | 2034      | 2417                                                                            | 2925          | 1755       |            | 1924                       | 1816                           | 10837   |
|                                                                              | 2039      | 2604                                                                            | 3310          | 2596       |            | 2341                       | 2005                           | 12856   |
|                                                                              | 2044      | 2805                                                                            | 3744          | 3700       |            | 2849                       | 2214                           | 15312   |
|                                                                              | 2049      | 3022                                                                            | 4237          | 5140       |            | 3466                       | 2444                           | 18309   |
| NRW (%) <sup>(C)</sup>                                                       | 2024      | 22.0                                                                            | 22.0          | 22.0       | -          | 22.0                       | 22.0                           | -       |
|                                                                              | 2029      | 15.0                                                                            | 15.0          | 15.0       |            | 15.0                       | 15.0                           |         |
|                                                                              | 2034      | 13.8                                                                            | 13.8          | 13.8       |            | 13.8                       | 13.8                           |         |
|                                                                              | 2039      | 12.5                                                                            | 12.5          | 12.5       |            | 12.5                       | 12.5                           |         |
|                                                                              | 2044      | 11.3                                                                            | 11.3          | 11.3       |            | 11.3                       | 11.3                           |         |
|                                                                              | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                           |         |
| Average Annual Daily Water Requirement (Kl/d)                                | 2024      | 2670                                                                            | 2930          | 817        | -          | 1667                       | 1910                           | 9994    |
|                                                                              | 2029      | 2639                                                                            | 3042          | 1314       |            | 1861                       | 1935                           | 10791   |
|                                                                              | 2034      | 2802                                                                            | 3392          | 2035       |            | 2231                       | 2106                           | 12565   |
|                                                                              | 2039      | 2976                                                                            | 3782          | 2967       |            | 2676                       | 2292                           | 14693   |
|                                                                              | 2044      | 3161                                                                            | 4219          | 4169       |            | 3210                       | 2494                           | 17253   |
|                                                                              | 2049      | 3358                                                                            | 4707          | 5712       |            | 3851                       | 2716                           | 20343   |
| Average Peak Month Daily Water Requirement (Kl/d)                            | 2024      | 3578                                                                            | 3926          | 1095       | -          | 2234                       | 2559                           | 13392   |
|                                                                              | 2029      | 3537                                                                            | 4076          | 1761       |            | 2494                       | 2593                           | 14460   |
|                                                                              | 2034      | 3755                                                                            | 4545          | 2726       |            | 2990                       | 2821                           | 16837   |
|                                                                              | 2039      | 3987                                                                            | 5068          | 3976       |            | 3586                       | 3071                           | 19688   |
|                                                                              | 2044      | 4235                                                                            | 5654          | 5586       |            | 4301                       | 3342                           | 23119   |
|                                                                              | 2049      | 4499                                                                            | 6308          | 7654       |            | 5160                       | 3639                           | 27260   |
| Peak Day Water Requirement (Kl/d)                                            | 2024      | 4472                                                                            | 4907          | 1369       | -          | 2792                       | 3199                           | 16739   |
|                                                                              | 2029      | 4421                                                                            | 5095          | 2201       |            | 3117                       | 3241                           | 18076   |
|                                                                              | 2034      | 4694                                                                            | 5681          | 3408       |            | 3737                       | 3527                           | 21047   |
|                                                                              | 2039      | 4984                                                                            | 6335          | 4970       |            | 4482                       | 3838                           | 24610   |
|                                                                              | 2044      | 5294                                                                            | 7067          | 6983       |            | 5376                       | 4178                           | 28898   |
|                                                                              | 2049      | 5624                                                                            | 7885          | 9567       |            | 6450                       | 4549                           | 34075   |
| Total Annual Water Requirement (Kl/year)                                     | 2024      | 974560                                                                          | 1069335       | 298270     | -          | 608380                     | 697150                         | 3647695 |
|                                                                              | 2029      | 963417                                                                          | 1110219       | 479665     |            | 679231                     | 706322                         | 3938854 |
|                                                                              | 2034      | 1022833                                                                         | 1237906       | 742608     |            | 814412                     | 768535                         | 4586293 |
|                                                                              | 2039      | 1086140                                                                         | 1380569       | 1083034    |            | 976701                     | 836403                         | 5362846 |
|                                                                              | 2044      | 1153601                                                                         | 1539987       | 1521674    |            | 1171569                    | 910450                         | 6297282 |
|                                                                              | 2049      | 1225496                                                                         | 1718155       | 2084735    |            | 1405596                    | 991249                         | 7425231 |
| Peak Month Factor <sup>(F)</sup>                                             | 1.34      |                                                                                 |               |            |            |                            |                                |         |
| Peak Day Factor <sup>(G)</sup>                                               | 1.25      |                                                                                 |               |            |            |                            |                                |         |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 7.0 % reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 1300.1 kl/d.

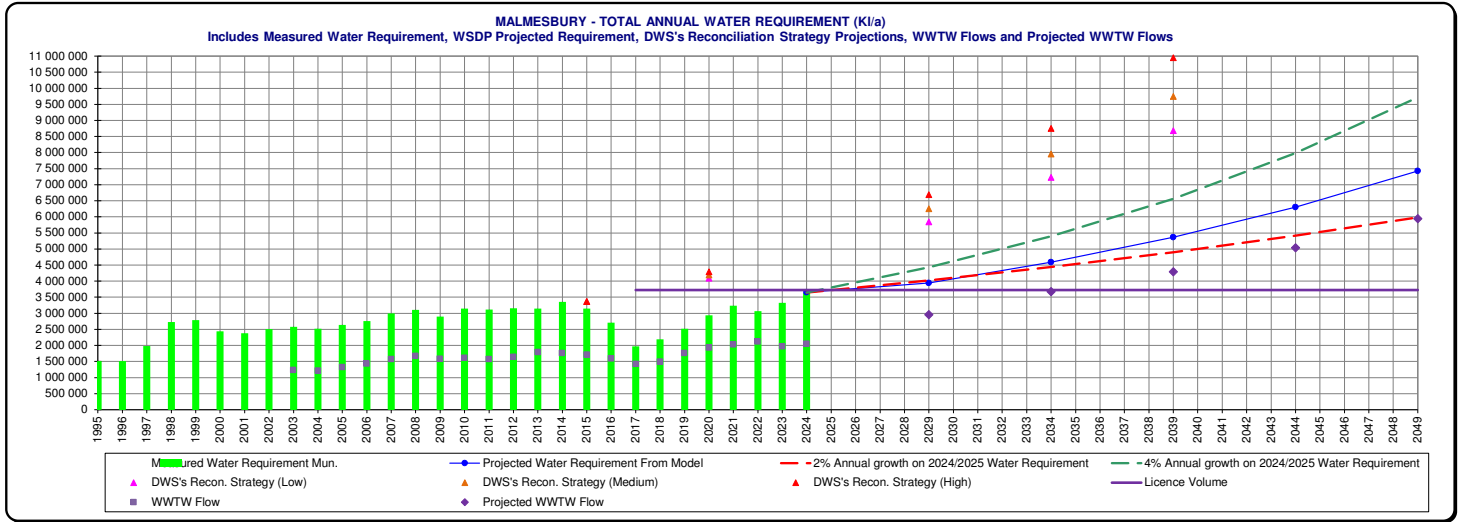
(E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 1 489.8 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

| Malmesbury Distribution System Projected Water Requirements (Kl/a) |                                                   |                                        |                                                 |                                                 |                                                              |           | WWTW Flow and Projections (Kl/a) |                          |                                       |
|--------------------------------------------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|-----------|----------------------------------|--------------------------|---------------------------------------|
| Year *                                                             | Measured Potable Water Requirement (System Input) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections DWS's Reconciliation Strategy (March 2016) |           |                                  | Metered Annual WWTW Flow | Percentage (WWTW Flow / System Input) |
|                                                                    |                                                   |                                        |                                                 |                                                 | Low                                                          | Medium    | High                             |                          |                                       |
| 1995                                                               | 1 512 880                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1996                                                               | 1 512 899                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1997                                                               | 1 981 019                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1998                                                               | 2 727 369                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1999                                                               | 2 782 993                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2000                                                               | 2 437 000                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2001                                                               | 2 376 180                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2002                                                               | 2 509 473                                         |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2003                                                               | 2 575 832                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 230 105                | 47.76%                                |
| 2004                                                               | 2 521 004                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 208 985                | 47.96%                                |
| 2005                                                               | 2 631 087                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 323 050                | 50.29%                                |
| 2006                                                               | 2 756 470                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 428 997                | 51.84%                                |
| 2007                                                               | 2 996 580                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 566 877                | 52.29%                                |
| 2008                                                               | 3 107 700                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 665 596                | 53.60%                                |
| 2009                                                               | 2 892 103                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 575 871                | 54.49%                                |
| 2010                                                               | 3 146 105                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 613 910                | 51.30%                                |
| 2011                                                               | 3 113 432                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 570 887                | 50.46%                                |
| 2012                                                               | 3 149 412                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 642 281                | 52.15%                                |
| 2013                                                               | 3 140 999                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 785 223                | 56.84%                                |
| 2014                                                               | 3 349 489                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 755 827                | 52.41%                                |
| 2015                                                               | 3 141 356                                         |                                        |                                                 |                                                 | 3 363 000                                                    | 3 363 000 | 3 363 000                        | 1 706 420                | 54.32%                                |
| 2016                                                               | 2 708 884                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 590 479                | 58.71%                                |
| 2017                                                               | 1 973 521                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 423 288                | 72.12%                                |
| 2018                                                               | 2 186 436                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 494 426                | 68.35%                                |
| 2019                                                               | 2 520 750                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 754 088                | 69.98%                                |
| 2020                                                               | 2 936 354                                         |                                        |                                                 |                                                 | 4 092 000                                                    | 4 191 000 | 4 292 000                        | 1 932 526                | 65.81%                                |
| 2021                                                               | 3 233 662                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 2 028 272                | 62.72%                                |
| 2022                                                               | 3 059 176                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 2 119 441                | 69.28%                                |
| 2023                                                               | 3 324 756                                         |                                        |                                                 |                                                 |                                                              |           |                                  | 1 967 200                | 59.17%                                |
| 2024                                                               | 3 642 956                                         | 3 647 695                              | 3 642 956                                       | 3 642 956                                       |                                                              |           |                                  | 2 047 373                | 56.20%                                |
| 2029                                                               |                                                   | 3 938 854                              | 4 022 118                                       | 4 432 213                                       | 5 841 200                                                    | 6 251 800 | 6 689 200                        |                          | 75.00%                                |
| 2034                                                               |                                                   | 4 586 293                              | 4 440 743                                       | 5 392 465                                       | 7 220 600                                                    | 7 948 600 | 8 750 800                        |                          | 80.00%                                |
| 2039                                                               |                                                   | 5 362 646                              | 4 902 939                                       | 6 560 758                                       | 8 675 100                                                    | 9 748 100 | 10 949 300                       |                          | 80.00%                                |
| 2044                                                               |                                                   | 6 297 282                              | 5 413 241                                       | 7 982 165                                       |                                                              |           |                                  |                          | 80.00%                                |
| 2049                                                               |                                                   | 7 425 231                              | 5 976 655                                       | 9 711 524                                       |                                                              |           |                                  |                          | 80.00%                                |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.





| Moorreesburg Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                                |         |
|--------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|--------------------------------|---------|
| Parameter / Variable                                                           | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other and Farms <sup>(E)</sup> | Total   |
|                                                                                |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                                |         |
|                                                                                |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                                |         |
| Population <sup>(A)</sup>                                                      | 2024      | 7438                                                                            | 11529         | 2474       | 21441      | -                          | -                              | -       |
|                                                                                | 2029      | 8013                                                                            | 13044         | 5030       | 26086      |                            |                                |         |
|                                                                                | 2034      | 8632                                                                            | 14758         | 8348       | 31738      |                            |                                |         |
|                                                                                | 2039      | 9299                                                                            | 16697         | 12618      | 38614      |                            |                                |         |
|                                                                                | 2044      | 10018                                                                           | 18891         | 18071      | 46980      |                            |                                |         |
|                                                                                | 2049      | 10792                                                                           | 21374         | 24993      | 57159      |                            |                                |         |
| Growth (%/year)                                                                |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                                | -       |
|                                                                                | 2024-2029 | 1.50%                                                                           | 2.50%         | 15.24%     | 4.00%      | 4%                         | 2%                             |         |
|                                                                                | 2029-2034 | 1.50%                                                                           | 2.50%         | 10.66%     | 4.00%      | 4%                         | 2%                             |         |
|                                                                                | 2034-2039 | 1.50%                                                                           | 2.50%         | 8.61%      | 4.00%      | 4%                         | 2%                             |         |
|                                                                                | 2039-2044 | 1.50%                                                                           | 2.50%         | 7.45%      | 4.00%      | 4%                         | 2%                             |         |
|                                                                                | 2044-2049 | 1.50%                                                                           | 2.50%         | 6.70%      | 4.00%      | 4%                         | 2%                             |         |
| Unit Demand (l/c/d) <sup>(B)</sup>                                             | 2024      | 75.0                                                                            | 50.0          | 25.0       | -          | -                          | -                              | -       |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                   | 2024      | 558                                                                             | 576           | 62         | -          | 229                        | 132                            | 1557    |
|                                                                                | 2029      | 601                                                                             | 652           | 126        |            | 279                        | 146                            | 1803    |
|                                                                                | 2034      | 647                                                                             | 738           | 209        |            | 339                        | 161                            | 2094    |
|                                                                                | 2039      | 697                                                                             | 835           | 315        |            | 412                        | 177                            | 2438    |
|                                                                                | 2044      | 751                                                                             | 945           | 452        |            | 502                        | 196                            | 2845    |
|                                                                                | 2049      | 809                                                                             | 1069          | 625        |            | 610                        | 216                            | 3330    |
| NRW (%) <sup>(C)</sup>                                                         | 2024      | 30.0                                                                            | 30.0          | 30.0       | -          | 30.0                       | 30.0                           | -       |
|                                                                                | 2029      | 25.0                                                                            | 25.0          | 25.0       |            | 25.0                       | 25.0                           |         |
|                                                                                | 2034      | 21.3                                                                            | 21.3          | 21.3       |            | 21.3                       | 21.3                           |         |
|                                                                                | 2039      | 17.5                                                                            | 17.5          | 17.5       |            | 17.5                       | 17.5                           |         |
|                                                                                | 2044      | 13.8                                                                            | 13.8          | 13.8       |            | 13.8                       | 13.8                           |         |
|                                                                                | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                           |         |
| Average Annual Daily Water Requirement (Kl/d)                                  | 2024      | 797                                                                             | 823           | 88         | -          | 327                        | 188                            | 2224    |
|                                                                                | 2029      | 801                                                                             | 870           | 168        |            | 371                        | 194                            | 2404    |
|                                                                                | 2034      | 822                                                                             | 937           | 265        |            | 430                        | 204                            | 2659    |
|                                                                                | 2039      | 845                                                                             | 1012          | 382        |            | 500                        | 215                            | 2955    |
|                                                                                | 2044      | 871                                                                             | 1095          | 524        |            | 582                        | 227                            | 3299    |
|                                                                                | 2049      | 899                                                                             | 1187          | 694        |            | 678                        | 240                            | 3700    |
| Average Peak Month Daily Water Requirement (Kl/d)                              | 2024      | 1068                                                                            | 1103          | 118        | -          | 438                        | 252                            | 2980    |
|                                                                                | 2029      | 1074                                                                            | 1165          | 225        |            | 498                        | 260                            | 3221    |
|                                                                                | 2034      | 1102                                                                            | 1256          | 355        |            | 577                        | 273                            | 3563    |
|                                                                                | 2039      | 1133                                                                            | 1356          | 512        |            | 670                        | 288                            | 3959    |
|                                                                                | 2044      | 1167                                                                            | 1468          | 702        |            | 780                        | 304                            | 4421    |
|                                                                                | 2049      | 1205                                                                            | 1591          | 930        |            | 909                        | 322                            | 4957    |
| Peak Day Water Requirement (Kl/d)                                              | 2024      | 1335                                                                            | 1379          | 148        | -          | 548                        | 315                            | 3726    |
|                                                                                | 2029      | 1342                                                                            | 1457          | 281        |            | 622                        | 325                            | 4027    |
|                                                                                | 2034      | 1377                                                                            | 1569          | 444        |            | 721                        | 342                            | 4453    |
|                                                                                | 2039      | 1416                                                                            | 1695          | 640        |            | 837                        | 360                            | 4949    |
|                                                                                | 2044      | 1459                                                                            | 1834          | 877        |            | 974                        | 380                            | 5526    |
|                                                                                | 2049      | 1506                                                                            | 1989          | 1163       |            | 1136                       | 402                            | 6197    |
| Total Annual Water Requirement (Kl/year)                                       | 2024      | 290876                                                                          | 300575        | 32254      | -          | 119407                     | 68724                          | 811837  |
|                                                                                | 2029      | 292466                                                                          | 317402        | 61196      |            | 135592                     | 70819                          | 877474  |
|                                                                                | 2034      | 300066                                                                          | 342010        | 96732      |            | 157113                     | 74466                          | 970387  |
|                                                                                | 2039      | 308563                                                                          | 369364        | 139561     |            | 182463                     | 78480                          | 1078431 |
|                                                                                | 2044      | 317957                                                                          | 399732        | 191185     |            | 212342                     | 82881                          | 1204097 |
|                                                                                | 2049      | 328258                                                                          | 433416        | 253397     |            | 247582                     | 87694                          | 1350348 |
| Peak Month Factor <sup>(F)</sup>                                               | 1.34      |                                                                                 |               |            |            |                            |                                |         |
| Peak Day Factor <sup>(G)</sup>                                                 | 1.25      |                                                                                 |               |            |            |                            |                                |         |

Notes :



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References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 5.0% reduction in NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 229.0 kl/d.

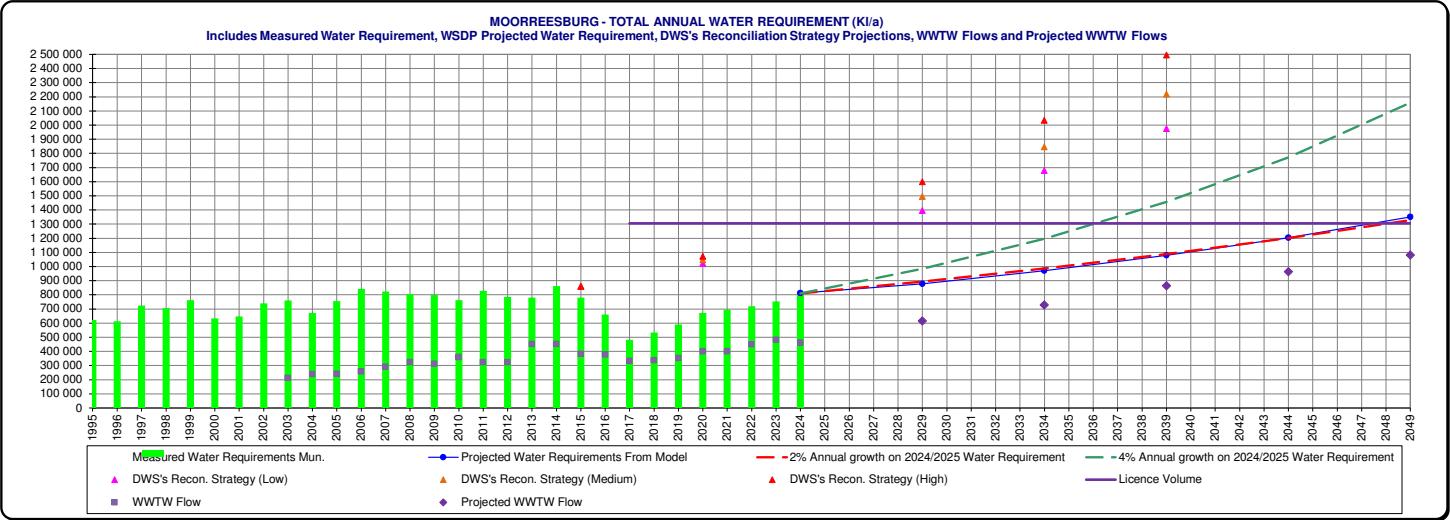
(E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 131.8 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

| Moorreesburg Distribution System Projected Water Requirements (Kl/a) |                                                   |                                        |                                                 |                                                 |                                                              |           | WWTW Flow and Projections (Kl/a) |                          |                                       |
|----------------------------------------------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|-----------|----------------------------------|--------------------------|---------------------------------------|
| Year *                                                               | Measured Potable Water Requirement (System Input) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections DWS's Reconciliation Strategy (March 2016) |           |                                  | Metered Annual WWTW Flow | Percentage (WWTW Flow / System Input) |
|                                                                      |                                                   |                                        |                                                 |                                                 | Low                                                          | Medium    | High                             |                          |                                       |
| 1995                                                                 | 620 630                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1996                                                                 | 611 350                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1997                                                                 | 723 280                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1998                                                                 | 705 310                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 1999                                                                 | 761 500                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2000                                                                 | 632 570                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2001                                                                 | 647 020                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2002                                                                 | 740 049                                           |                                        |                                                 |                                                 |                                                              |           |                                  |                          |                                       |
| 2003                                                                 | 759 670                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 211 407                  | 27.83%                                |
| 2004                                                                 | 672 255                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 238 317                  | 35.45%                                |
| 2005                                                                 | 755 340                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 242 503                  | 32.11%                                |
| 2006                                                                 | 840 580                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 258 350                  | 30.73%                                |
| 2007                                                                 | 822 940                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 292 230                  | 35.51%                                |
| 2008                                                                 | 803 680                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 322 443                  | 40.12%                                |
| 2009                                                                 | 797 450                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 311 213                  | 39.03%                                |
| 2010                                                                 | 762 024                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 358 339                  | 47.02%                                |
| 2011                                                                 | 827 492                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 322 393                  | 38.96%                                |
| 2012                                                                 | 784 940                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 323 235                  | 41.18%                                |
| 2013                                                                 | 778 942                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 451 958                  | 58.02%                                |
| 2014                                                                 | 860 288                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 451 435                  | 52.47%                                |
| 2015                                                                 | 779 557                                           |                                        |                                                 |                                                 | 860 000                                                      | 860 000   | 860 000                          | 381 562                  | 48.95%                                |
| 2016                                                                 | 659 185                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 378 334                  | 57.39%                                |
| 2017                                                                 | 480 789                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 330 949                  | 68.83%                                |
| 2018                                                                 | 532 506                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 337 553                  | 63.39%                                |
| 2019                                                                 | 590 106                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 351 586                  | 59.58%                                |
| 2020                                                                 | 671 591                                           |                                        |                                                 |                                                 | 1 022 000                                                    | 1 047 000 | 1 072 000                        | 400 243                  | 59.60%                                |
| 2021                                                                 | 692 967                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 399 445                  | 57.64%                                |
| 2022                                                                 | 718 573                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 450 414                  | 62.68%                                |
| 2023                                                                 | 752 853                                           |                                        |                                                 |                                                 |                                                              |           |                                  | 480 578                  | 63.83%                                |
| 2024                                                                 | 808 980                                           | 811 637                                | 808 980                                         | 808 980                                         |                                                              |           |                                  | 460 467                  | 56.92%                                |
| 2029                                                                 |                                                   | 877 474                                | 893 179                                         | 984 248                                         | 1 395 600                                                    | 1 493 800 | 1 599 200                        |                          | 70.00%                                |
| 2034                                                                 |                                                   | 970 387                                | 986 142                                         | 1 197 488                                       | 1 677 800                                                    | 1 846 600 | 2 033 400                        |                          | 75.00%                                |
| 2039                                                                 |                                                   | 1 078 431                              | 1 088 781                                       | 1 456 927                                       | 1 973 800                                                    | 2 218 600 | 2 493 900                        |                          | 80.00%                                |
| 2044                                                                 |                                                   | 1 204 097                              | 1 202 192                                       | 1 772 575                                       |                                                              |           |                                  |                          | 80.00%                                |
| 2049                                                                 |                                                   | 1 350 348                              | 1 327 217                                       | 2 156 608                                       |                                                              |           |                                  |                          | 80.00%                                |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



| Darling Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                      |        |
|---------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|----------------------|--------|
| Parameter / Variable                                                      | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other <sup>(E)</sup> | Total  |
|                                                                           |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                      |        |
|                                                                           |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                      |        |
| Population <sup>(A)</sup>                                                 | 2024      | 4145                                                                            | 7869          | 1465       | 13479      | -                          | -                    | -      |
|                                                                           | 2029      | 4356                                                                            | 8688          | 1838       | 14882      |                            |                      |        |
|                                                                           | 2034      | 4579                                                                            | 9593          | 2260       | 16431      |                            |                      |        |
|                                                                           | 2039      | 4812                                                                            | 10591         | 2738       | 18141      |                            |                      |        |
|                                                                           | 2044      | 5058                                                                            | 11693         | 3279       | 20030      |                            |                      |        |
|                                                                           | 2049      | 5316                                                                            | 12910         | 3888       | 22114      |                            |                      |        |
| Growth (%/year)                                                           |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                      | -      |
|                                                                           | 2024-2029 | 1.00%                                                                           | 2.00%         | 4.63%      | 2.00%      | 4%                         | 2%                   |        |
|                                                                           | 2029-2034 | 1.00%                                                                           | 2.00%         | 4.23%      | 2.00%      | 4%                         | 2%                   |        |
|                                                                           | 2034-2039 | 1.00%                                                                           | 2.00%         | 3.91%      | 2.00%      | 4%                         | 2%                   |        |
|                                                                           | 2039-2044 | 1.00%                                                                           | 2.00%         | 3.67%      | 2.00%      | 4%                         | 2%                   |        |
|                                                                           | 2044-2049 | 1.00%                                                                           | 2.00%         | 3.47%      | 2.00%      | 4%                         | 2%                   |        |
| Unit Demand (l/c/d) <sup>(B)</sup>                                        | 2024      | 85.0                                                                            | 70.0          | 50.0       | -          | -                          | -                    | -      |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)              | 2024      | 352                                                                             | 551           | 73         | -          | 251                        | 63                   | 1291   |
|                                                                           | 2029      | 370                                                                             | 608           | 92         |            | 306                        | 70                   | 1446   |
|                                                                           | 2034      | 389                                                                             | 671           | 113        |            | 372                        | 77                   | 1623   |
|                                                                           | 2039      | 409                                                                             | 741           | 137        |            | 453                        | 85                   | 1825   |
|                                                                           | 2044      | 430                                                                             | 819           | 164        |            | 551                        | 94                   | 2057   |
|                                                                           | 2049      | 452                                                                             | 904           | 194        |            | 670                        | 103                  | 2323   |
| NRW (%) <sup>(C)</sup>                                                    | 2024      | 25.3                                                                            | 25.3          | 25.3       | -          | 25.3                       | 25.3                 | -      |
|                                                                           | 2029      | 20.0                                                                            | 20.0          | 20.0       |            | 20.0                       | 20.0                 |        |
|                                                                           | 2034      | 17.5                                                                            | 17.5          | 17.5       |            | 17.5                       | 17.5                 |        |
|                                                                           | 2039      | 15.0                                                                            | 15.0          | 15.0       |            | 15.0                       | 15.0                 |        |
|                                                                           | 2044      | 12.5                                                                            | 12.5          | 12.5       |            | 12.5                       | 12.5                 |        |
|                                                                           | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
| Average Annual Daily Water Requirement (Kl/d)                             | 2024      | 472                                                                             | 737           | 98         | -          | 336                        | 84                   | 1728   |
|                                                                           | 2029      | 463                                                                             | 760           | 115        |            | 382                        | 87                   | 1807   |
|                                                                           | 2034      | 472                                                                             | 814           | 137        |            | 451                        | 93                   | 1967   |
|                                                                           | 2039      | 481                                                                             | 872           | 161        |            | 532                        | 100                  | 2147   |
|                                                                           | 2044      | 491                                                                             | 935           | 187        |            | 629                        | 107                  | 2351   |
|                                                                           | 2049      | 502                                                                             | 1004          | 216        |            | 744                        | 115                  | 2582   |
| Average Peak Month Daily Water Requirement (Kl/d)                         | 2024      | 585                                                                             | 914           | 122        | -          | 417                        | 105                  | 2143   |
|                                                                           | 2029      | 574                                                                             | 943           | 142        |            | 474                        | 108                  | 2241   |
|                                                                           | 2034      | 585                                                                             | 1009          | 170        |            | 559                        | 116                  | 2439   |
|                                                                           | 2039      | 597                                                                             | 1082          | 200        |            | 660                        | 124                  | 2662   |
|                                                                           | 2044      | 609                                                                             | 1160          | 232        |            | 780                        | 133                  | 2915   |
|                                                                           | 2049      | 623                                                                             | 1245          | 268        |            | 923                        | 143                  | 3201   |
| Peak Day Water Requirement (Kl/d)                                         | 2024      | 731                                                                             | 1143          | 152        | -          | 521                        | 131                  | 2678   |
|                                                                           | 2029      | 717                                                                             | 1178          | 178        |            | 592                        | 135                  | 2801   |
|                                                                           | 2034      | 731                                                                             | 1262          | 212        |            | 699                        | 144                  | 3048   |
|                                                                           | 2039      | 746                                                                             | 1352          | 250        |            | 825                        | 155                  | 3328   |
|                                                                           | 2044      | 762                                                                             | 1450          | 290        |            | 975                        | 166                  | 3643   |
|                                                                           | 2049      | 778                                                                             | 1556          | 335        |            | 1154                       | 178                  | 4001   |
| Total Annual Water Requirement (Kl/year)                                  | 2024      | 172150                                                                          | 269156        | 35797      | -          | 122790                     | 30822                | 630715 |
|                                                                           | 2029      | 168944                                                                          | 277483        | 41922      |            | 139496                     | 31776                | 659621 |
|                                                                           | 2034      | 172182                                                                          | 297080        | 49997      |            | 164575                     | 34020                | 717853 |
|                                                                           | 2039      | 175642                                                                          | 318353        | 58794      |            | 194342                     | 36456                | 783587 |
|                                                                           | 2044      | 179327                                                                          | 341445        | 68386      |            | 229691                     | 39100                | 857949 |
|                                                                           | 2049      | 183239                                                                          | 366511        | 78849      |            | 271692                     | 41971                | 942261 |
| Peak Month Factor <sup>(F)</sup>                                          | 1.24      |                                                                                 |               |            |            |                            |                      |        |
| Peak Day Factor <sup>(G)</sup>                                            | 1.25      |                                                                                 |               |            |            |                            |                      |        |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated reduction of 5.3% in NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 251.3 kl/d.

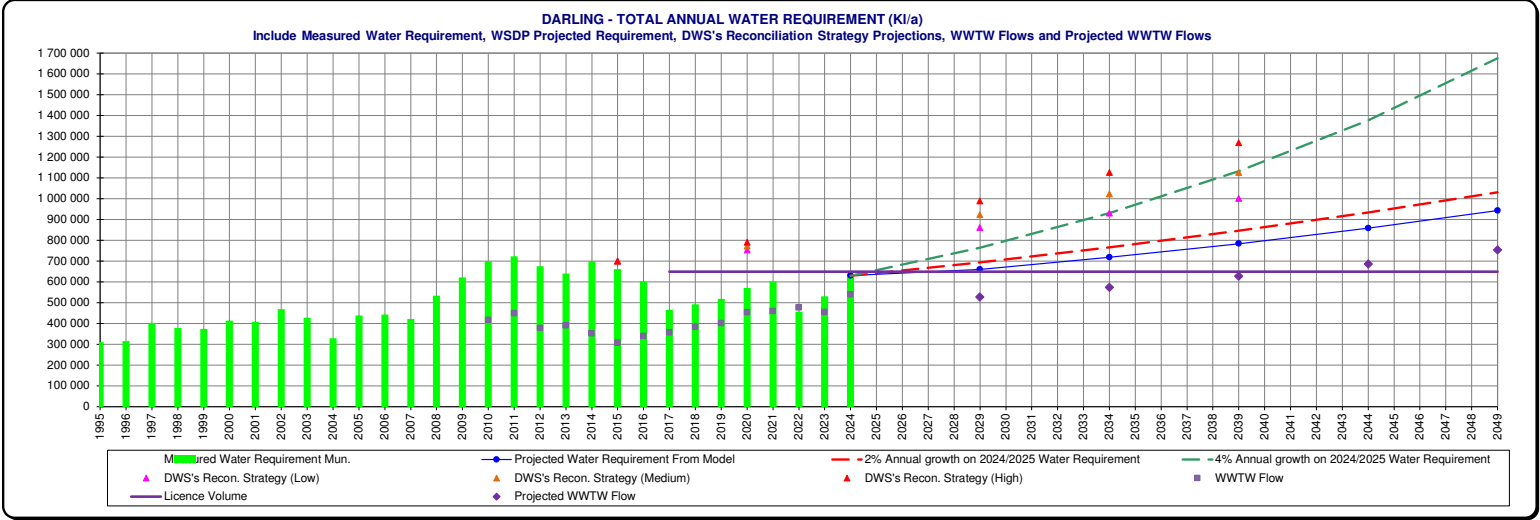
(E) - Others: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 63.1 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

| Darling Distribution System Projected Water Requirements (KI/a) |                                                   |                                        |                                                 |                                                 |                                                              |           |           | WWTW Flow and Projections (KI/a) |                                       |                     |
|-----------------------------------------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------|-----------|-----------|----------------------------------|---------------------------------------|---------------------|
| Year *                                                          | Measured Potable Water Requirement (System Input) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections DWS's Reconciliation Strategy (March 2016) |           |           | Metered Annual WWTW Flow         | Percentage (WWTW Flow / System Input) | Projected WWTW Flow |
|                                                                 |                                                   |                                        |                                                 |                                                 | Low                                                          | Medium    | High      |                                  |                                       |                     |
| 1995                                                            | 309 933                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 1996                                                            | 314 332                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 1997                                                            | 402 861                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 1998                                                            | 378 270                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 1999                                                            | 373 752                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2000                                                            | 413 420                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2001                                                            | 407 210                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2002                                                            | 468 990                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2003                                                            | 427 210                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2004                                                            | 329 030                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2005                                                            | 437 922                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2006                                                            | 442 554                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2007                                                            | 421 210                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2008                                                            | 533 710                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2009                                                            | 621 480                                           |                                        |                                                 |                                                 |                                                              |           |           |                                  |                                       |                     |
| 2010                                                            | 699 043                                           |                                        |                                                 |                                                 |                                                              |           |           | 417 091                          | 59.67%                                |                     |
| 2011                                                            | 722 191                                           |                                        |                                                 |                                                 |                                                              |           |           | 448 715                          | 62.13%                                |                     |
| 2012                                                            | 675 214                                           |                                        |                                                 |                                                 |                                                              |           |           | 378 518                          | 56.06%                                |                     |
| 2013                                                            | 639 744                                           |                                        |                                                 |                                                 |                                                              |           |           | 390 035                          | 60.97%                                |                     |
| 2014                                                            | 699 379                                           |                                        |                                                 |                                                 |                                                              |           |           | 352 744                          | 50.44%                                |                     |
| 2015                                                            | 661 330                                           |                                        |                                                 |                                                 | 699 000                                                      | 699 000   | 699 000   | 307 584                          | 46.51%                                |                     |
| 2016                                                            | 603 442                                           |                                        |                                                 |                                                 |                                                              |           |           | 339 337                          | 56.23%                                |                     |
| 2017                                                            | 465 322                                           |                                        |                                                 |                                                 |                                                              |           |           | 357 313                          | 76.79%                                |                     |
| 2018                                                            | 491 479                                           |                                        |                                                 |                                                 |                                                              |           |           | 383 607                          | 78.05%                                |                     |
| 2019                                                            | 518 097                                           |                                        |                                                 |                                                 |                                                              |           |           | 401 561                          | 77.51%                                |                     |
| 2020                                                            | 570 859                                           |                                        |                                                 |                                                 | 753 000                                                      | 772 000   | 791 000   | 452 898                          | 79.34%                                |                     |
| 2021                                                            | 602 718                                           |                                        |                                                 |                                                 |                                                              |           |           | 460 101                          | 76.34%                                |                     |
| 2022                                                            | 456 832                                           |                                        |                                                 |                                                 |                                                              |           |           | 477 148                          | 104.45%                               |                     |
| 2023                                                            | 531 032                                           |                                        |                                                 |                                                 |                                                              |           |           | 454 765                          | 85.64%                                |                     |
| 2024                                                            | 628 500                                           | 630 715                                | 628 500                                         | 628 500                                         |                                                              |           |           | 539 355                          | 85.82%                                |                     |
| 2029                                                            | 659 621                                           | 693 915                                | 693 915                                         | 764 666                                         | 861 600                                                      | 923 200   | 989 400   |                                  | 80.00%                                | 527 697             |
| 2034                                                            | 717 853                                           | 766 138                                | 766 138                                         | 930 334                                         | 930 400                                                      | 1 023 400 | 1 126 600 |                                  | 80.00%                                | 574 283             |
| 2039                                                            | 783 587                                           | 845 878                                | 845 878                                         | 1 131 893                                       | 1 000 900                                                    | 1 126 400 | 1 268 600 |                                  | 80.00%                                | 626 870             |
| 2044                                                            | 857 949                                           | 933 918                                | 933 918                                         | 1 377 121                                       |                                                              |           |           |                                  | 80.00%                                | 686 359             |
| 2049                                                            | 942 261                                           | 1 031 121                              | 1 031 121                                       | 1 675 478                                       |                                                              |           |           |                                  | 80.00%                                | 753 808             |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



| Riebeeck Kasteel Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                              |         |
|------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|------------------------------|---------|
| Parameter / Variable                                                               | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other & Farms <sup>(E)</sup> | Total   |
|                                                                                    |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                              |         |
|                                                                                    |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                              |         |
| Population <sup>(A)</sup>                                                          | 2024      | 2777                                                                            | 6964          | 1732       | 11473      | -                          | -                            | -       |
|                                                                                    | 2029      | 3066                                                                            | 8271          | 4755       | 16092      |                            |                              |         |
|                                                                                    | 2034      | 3385                                                                            | 9824          | 9361       | 22570      |                            |                              |         |
|                                                                                    | 2039      | 3737                                                                            | 11668         | 16251      | 31655      |                            |                              |         |
|                                                                                    | 2044      | 4126                                                                            | 13857         | 26415      | 44398      |                            |                              |         |
|                                                                                    | 2049      | 4555                                                                            | 16458         | 41257      | 62270      |                            |                              |         |
| Growth (%/year)                                                                    |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                              | -       |
|                                                                                    | 2024-2029 | 2.00%                                                                           | 3.50%         | 22.38%     | 7.00%      | 4%                         | 2%                           |         |
|                                                                                    | 2029-2034 | 2.00%                                                                           | 3.50%         | 14.51%     | 7.00%      | 4%                         | 2%                           |         |
|                                                                                    | 2034-2039 | 2.00%                                                                           | 3.50%         | 11.66%     | 7.00%      | 4%                         | 2%                           |         |
|                                                                                    | 2039-2044 | 2.00%                                                                           | 3.50%         | 10.20%     | 7.00%      | 4%                         | 2%                           |         |
|                                                                                    | 2044-2049 | 2.00%                                                                           | 3.50%         | 9.33%      | 7.00%      | 4%                         | 2%                           |         |
| Unit Demand (l/c/d) <sup>(B)</sup>                                                 | 2024      | 85.0                                                                            | 55.0          | 45.0       | -          | -                          | -                            | -       |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                       | 2024      | 236                                                                             | 383           | 78         | -          | 36                         | 24                           | 757     |
|                                                                                    | 2029      | 261                                                                             | 455           | 214        |            | 44                         | 26                           | 1000    |
|                                                                                    | 2034      | 288                                                                             | 540           | 421        |            | 54                         | 29                           | 1332    |
|                                                                                    | 2039      | 318                                                                             | 642           | 731        |            | 65                         | 32                           | 1788    |
|                                                                                    | 2044      | 351                                                                             | 762           | 1189       |            | 80                         | 35                           | 2416    |
|                                                                                    | 2049      | 387                                                                             | 905           | 1857       |            | 97                         | 39                           | 3284    |
| NRW (%) <sup>(C)</sup>                                                             | 2024      | 29.2                                                                            | 29.2          | 29.2       | -          | 29.2                       | 29.2                         | -       |
|                                                                                    | 2029      | 25.0                                                                            | 25.0          | 25.0       |            | 25.0                       | 25.0                         |         |
|                                                                                    | 2034      | 22.5                                                                            | 22.5          | 22.5       |            | 22.5                       | 22.5                         |         |
|                                                                                    | 2039      | 20.0                                                                            | 20.0          | 20.0       |            | 20.0                       | 20.0                         |         |
|                                                                                    | 2044      | 17.5                                                                            | 17.5          | 17.5       |            | 17.5                       | 17.5                         |         |
|                                                                                    | 2049      | 15.0                                                                            | 15.0          | 15.0       |            | 15.0                       | 15.0                         |         |
| Average Annual Daily Water Requirement (Kl/d)                                      | 2024      | 333                                                                             | 541           | 110        | -          | 51                         | 33                           | 1069    |
|                                                                                    | 2029      | 347                                                                             | 607           | 285        |            | 59                         | 35                           | 1333    |
|                                                                                    | 2034      | 371                                                                             | 697           | 544        |            | 69                         | 37                           | 1718    |
|                                                                                    | 2039      | 397                                                                             | 802           | 914        |            | 82                         | 40                           | 2235    |
|                                                                                    | 2044      | 425                                                                             | 924           | 1441       |            | 96                         | 42                           | 2928    |
|                                                                                    | 2049      | 456                                                                             | 1065          | 2184       |            | 114                        | 45                           | 3864    |
| Average Peak Month Daily Water Requirement (Kl/d)                                  | 2024      | 487                                                                             | 790           | 161        | -          | 75                         | 48                           | 1561    |
|                                                                                    | 2029      | 507                                                                             | 886           | 417        |            | 86                         | 51                           | 1946    |
|                                                                                    | 2034      | 542                                                                             | 1018          | 794        |            | 101                        | 54                           | 2509    |
|                                                                                    | 2039      | 580                                                                             | 1171          | 1335       |            | 119                        | 58                           | 3262    |
|                                                                                    | 2044      | 621                                                                             | 1349          | 2104       |            | 141                        | 62                           | 4276    |
|                                                                                    | 2049      | 665                                                                             | 1555          | 3189       |            | 166                        | 66                           | 5641    |
| Peak Day Water Requirement (Kl/d)                                                  | 2024      | 608                                                                             | 987           | 201        | -          | 94                         | 61                           | 1951    |
|                                                                                    | 2029      | 634                                                                             | 1107          | 521        |            | 107                        | 63                           | 2432    |
|                                                                                    | 2034      | 677                                                                             | 1272          | 992        |            | 127                        | 67                           | 3136    |
|                                                                                    | 2039      | 725                                                                             | 1464          | 1668       |            | 149                        | 72                           | 4078    |
|                                                                                    | 2044      | 776                                                                             | 1686          | 2629       |            | 176                        | 77                           | 5344    |
|                                                                                    | 2049      | 831                                                                             | 1944          | 3986       |            | 208                        | 83                           | 7052    |
| Total Annual Water Requirement (Kl/year)                                           | 2024      | 121669                                                                          | 197469        | 40192      | -          | 18714                      | 12115                        | 390159  |
|                                                                                    | 2029      | 126810                                                                          | 221397        | 104134     |            | 21493                      | 12627                        | 486461  |
|                                                                                    | 2034      | 135492                                                                          | 254468        | 198399     |            | 25306                      | 13492                        | 627157  |
|                                                                                    | 2039      | 144920                                                                          | 292784        | 333647     |            | 29827                      | 14430                        | 815607  |
|                                                                                    | 2044      | 155154                                                                          | 337198        | 525893     |            | 35189                      | 15449                        | 1068884 |
|                                                                                    | 2049      | 166265                                                                          | 388706        | 797229     |            | 41554                      | 16556                        | 1410310 |
| Peak Month Factor <sup>(F)</sup>                                                   | 1.46      |                                                                                 |               |            |            |                            |                              |         |
| Peak Day Factor <sup>(G)</sup>                                                     | 1.25      |                                                                                 |               |            |            |                            |                              |         |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 4.2 % reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 36.3 kl/d.

(E) - Others and Farms: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 23.5 kl/d.

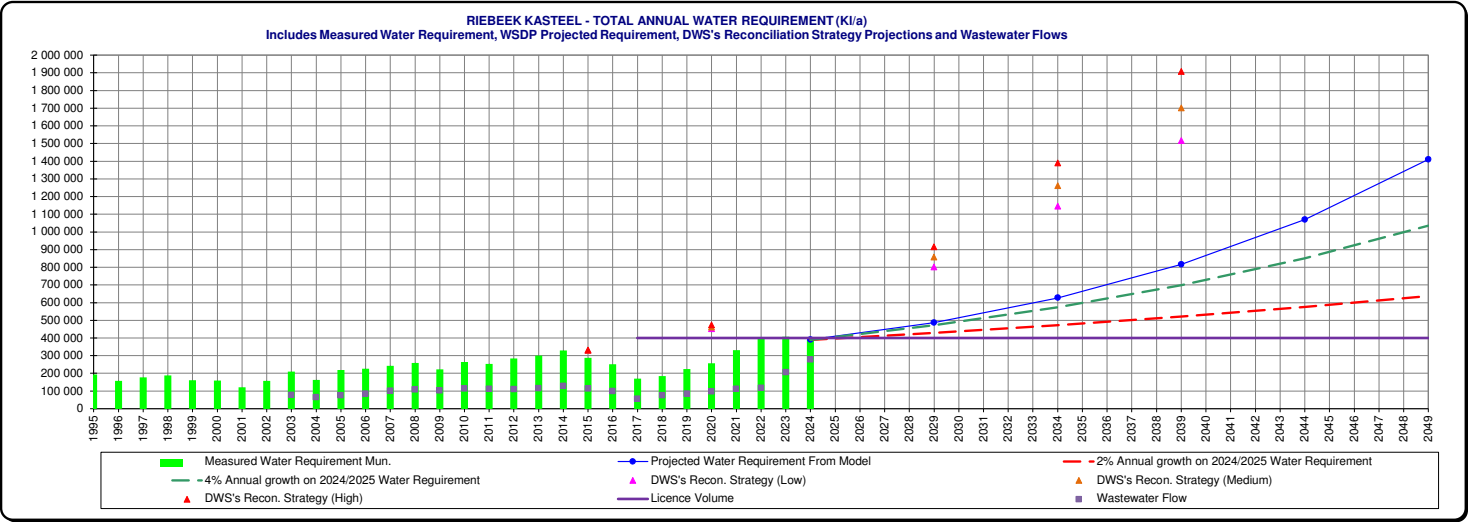
(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated



| Riebeek Kasteel Distribution System Projected Water Requirement (Kl/a) |                                                   |                                        |                                                 |                                                 |                                            |           | Wastewater Flow |                                                                          |
|------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------|-----------|-----------------|--------------------------------------------------------------------------|
| Year *                                                                 | Measured Potable Water Requirement (System Input) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections                          |           |                 | Annual Wastewater Flows (Estimated from Billed Metered Consumption Data) |
|                                                                        |                                                   |                                        |                                                 |                                                 | DWS's Reconciliation Strategy (March 2016) |           |                 |                                                                          |
|                                                                        |                                                   |                                        |                                                 |                                                 | Low                                        | Medium    | High            |                                                                          |
| 1995                                                                   | 192 784                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 1996                                                                   | 157 602                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 1997                                                                   | 176 707                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 1998                                                                   | 187 919                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 1999                                                                   | 160 439                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 2000                                                                   | 157 930                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 2001                                                                   | 120 933                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 2002                                                                   | 157 215                                           |                                        |                                                 |                                                 |                                            |           |                 |                                                                          |
| 2003                                                                   | 209 142                                           |                                        |                                                 |                                                 |                                            |           |                 | 76 931                                                                   |
| 2004                                                                   | 182 254                                           |                                        |                                                 |                                                 |                                            |           |                 | 63 992                                                                   |
| 2005                                                                   | 218 651                                           |                                        |                                                 |                                                 |                                            |           |                 | 76 316                                                                   |
| 2006                                                                   | 226 158                                           |                                        |                                                 |                                                 |                                            |           |                 | 85 438                                                                   |
| 2007                                                                   | 241 840                                           |                                        |                                                 |                                                 |                                            |           |                 | 101 498                                                                  |
| 2008                                                                   | 257 634                                           |                                        |                                                 |                                                 |                                            |           |                 | 108 821                                                                  |
| 2009                                                                   | 222 052                                           |                                        |                                                 |                                                 |                                            |           |                 | 103 236                                                                  |
| 2010                                                                   | 263 467                                           |                                        |                                                 |                                                 |                                            |           |                 | 114 418                                                                  |
| 2011                                                                   | 253 825                                           |                                        |                                                 |                                                 |                                            |           |                 | 111 779                                                                  |
| 2012                                                                   | 284 585                                           |                                        |                                                 |                                                 |                                            |           |                 | 110 726                                                                  |
| 2013                                                                   | 300 867                                           |                                        |                                                 |                                                 |                                            |           |                 | 116 107                                                                  |
| 2014                                                                   | 329 440                                           |                                        |                                                 |                                                 |                                            |           |                 | 127 364                                                                  |
| 2015                                                                   | 287 140                                           |                                        |                                                 |                                                 | 330 000                                    | 330 000   | 330 000         | 114 282                                                                  |
| 2016                                                                   | 250 636                                           |                                        |                                                 |                                                 |                                            |           |                 | 98 969                                                                   |
| 2017                                                                   | 169 061                                           |                                        |                                                 |                                                 |                                            |           |                 | 55 752                                                                   |
| 2018                                                                   | 183 446                                           |                                        |                                                 |                                                 |                                            |           |                 | 75 399                                                                   |
| 2019                                                                   | 223 405                                           |                                        |                                                 |                                                 |                                            |           |                 | 83 782                                                                   |
| 2020                                                                   | 256 218                                           |                                        |                                                 |                                                 | 452 000                                    | 462 000   | 473 000         | 97 035                                                                   |
| 2021                                                                   | 330 992                                           |                                        |                                                 |                                                 |                                            |           |                 | 111 095                                                                  |
| 2022                                                                   | 397 478                                           |                                        |                                                 |                                                 |                                            |           |                 | 116 376                                                                  |
| 2023                                                                   | 407 288                                           |                                        |                                                 |                                                 |                                            |           |                 | 206 623                                                                  |
| 2024                                                                   | 387 878                                           | 390 159                                | 387 878                                         | 387 878                                         |                                            |           |                 | 277 740                                                                  |
| 2029                                                                   |                                                   | 486 461                                | 428 249                                         | 471 913                                         | 802 200                                    | 856 800   | 915 800         |                                                                          |
| 2034                                                                   |                                                   | 627 157                                | 472 821                                         | 574 154                                         | 1 145 200                                  | 1 261 000 | 1 389 000       |                                                                          |
| 2039                                                                   |                                                   | 815 607                                | 522 033                                         | 698 546                                         | 1 516 700                                  | 1 701 000 | 1 906 500       |                                                                          |
| 2044                                                                   |                                                   | 1 068 884                              | 576 366                                         | 849 888                                         |                                            |           |                 |                                                                          |
| 2049                                                                   |                                                   | 1 410 310                              | 636 355                                         | 1 034 019                                       |                                            |           |                 |                                                                          |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



| Riebeeck Wes Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                      |        |
|--------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|----------------------|--------|
| Parameter / Variable                                                           | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other <sup>(E)</sup> | Total  |
|                                                                                |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                      |        |
|                                                                                |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                      |        |
| Population <sup>(A)</sup>                                                      | 2024      | 3528                                                                            | 5199          | 1095       | 9822       | -                          | -                    | -      |
|                                                                                | 2029      | 3801                                                                            | 6027          | 3317       | 13144      |                            |                      |        |
|                                                                                | 2034      | 4095                                                                            | 6987          | 6509       | 17590      |                            |                      |        |
|                                                                                | 2039      | 4411                                                                            | 8100          | 11029      | 23539      |                            |                      |        |
|                                                                                | 2044      | 4752                                                                            | 9390          | 17359      | 31501      |                            |                      |        |
|                                                                                | 2049      | 5119                                                                            | 10885         | 26151      | 42155      |                            |                      |        |
| Growth (%/year)                                                                |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                      | -      |
|                                                                                | 2024-2029 | 1.50%                                                                           | 3.00%         | 24.81%     | 6.00%      | 4%                         | 2%                   |        |
|                                                                                | 2029-2034 | 1.50%                                                                           | 3.00%         | 14.44%     | 6.00%      | 4%                         | 2%                   |        |
|                                                                                | 2034-2039 | 1.50%                                                                           | 3.00%         | 11.12%     | 6.00%      | 4%                         | 2%                   |        |
|                                                                                | 2039-2044 | 1.50%                                                                           | 3.00%         | 9.50%      | 6.00%      | 4%                         | 2%                   |        |
|                                                                                | 2044-2049 | 1.50%                                                                           | 3.00%         | 8.54%      | 6.00%      | 4%                         | 2%                   |        |
| Unit Demand (l/c/d) <sup>(B)</sup>                                             | 2024      | 55.0                                                                            | 30.0          | 10.0       | -          | -                          | -                    | -      |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                   | 2024      | 194                                                                             | 156           | 11         | -          | 45                         | 59                   | 464    |
|                                                                                | 2029      | 209                                                                             | 181           | 33         |            | 54                         | 65                   | 542    |
|                                                                                | 2034      | 225                                                                             | 210           | 65         |            | 66                         | 72                   | 637    |
|                                                                                | 2039      | 243                                                                             | 243           | 110        |            | 80                         | 79                   | 755    |
|                                                                                | 2044      | 261                                                                             | 282           | 174        |            | 98                         | 87                   | 901    |
|                                                                                | 2049      | 282                                                                             | 327           | 262        |            | 119                        | 96                   | 1085   |
| NRW (%) <sup>(C)</sup>                                                         | 2024      | 12.1                                                                            | 12.1          | 12.1       | -          | 12.1                       | 12.1                 | -      |
|                                                                                | 2029      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                                | 2034      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                                | 2039      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                                | 2044      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                                | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
| Average Annual Daily Water Requirement (Kl/d)                                  | 2024      | 221                                                                             | 177           | 12         | -          | 51                         | 67                   | 528    |
|                                                                                | 2029      | 232                                                                             | 201           | 37         |            | 60                         | 72                   | 602    |
|                                                                                | 2034      | 250                                                                             | 233           | 72         |            | 73                         | 80                   | 708    |
|                                                                                | 2039      | 270                                                                             | 270           | 123        |            | 89                         | 88                   | 839    |
|                                                                                | 2044      | 290                                                                             | 313           | 193        |            | 108                        | 97                   | 1002   |
|                                                                                | 2049      | 313                                                                             | 363           | 291        |            | 132                        | 107                  | 1205   |
| Average Peak Month Daily Water Requirement (Kl/d)                              | 2024      | 360                                                                             | 289           | 20         | -          | 83                         | 109                  | 861    |
|                                                                                | 2029      | 379                                                                             | 327           | 60         |            | 98                         | 117                  | 982    |
|                                                                                | 2034      | 408                                                                             | 380           | 118        |            | 119                        | 130                  | 1154   |
|                                                                                | 2039      | 439                                                                             | 440           | 200        |            | 145                        | 143                  | 1367   |
|                                                                                | 2044      | 473                                                                             | 510           | 314        |            | 177                        | 158                  | 1632   |
|                                                                                | 2049      | 510                                                                             | 591           | 474        |            | 215                        | 174                  | 1964   |
| Peak Day Water Requirement (Kl/d)                                              | 2024      | 450                                                                             | 362           | 25         | -          | 103                        | 136                  | 1076   |
|                                                                                | 2029      | 473                                                                             | 409           | 75         |            | 123                        | 147                  | 1227   |
|                                                                                | 2034      | 510                                                                             | 475           | 147        |            | 149                        | 162                  | 1443   |
|                                                                                | 2039      | 549                                                                             | 550           | 250        |            | 181                        | 179                  | 1709   |
|                                                                                | 2044      | 592                                                                             | 638           | 393        |            | 221                        | 197                  | 2041   |
|                                                                                | 2049      | 637                                                                             | 739           | 592        |            | 269                        | 218                  | 2455   |
| Total Annual Water Requirement (Kl/year)                                       | 2024      | 80577                                                                           | 64764         | 4548       | -          | 18478                      | 24375                | 192741 |
|                                                                                | 2029      | 84778                                                                           | 73327         | 13450      |            | 21957                      | 26284                | 219797 |
|                                                                                | 2034      | 91330                                                                           | 85006         | 26396      |            | 26714                      | 29020                | 258467 |
|                                                                                | 2039      | 98389                                                                           | 98546         | 44728      |            | 32502                      | 32040                | 306204 |
|                                                                                | 2044      | 105993                                                                          | 114241        | 70402      |            | 39544                      | 35375                | 365554 |
|                                                                                | 2049      | 114184                                                                          | 132437        | 106057     |            | 48111                      | 39056                | 439846 |
| Peak Month Factor <sup>(F)</sup>                                               | 1.63      |                                                                                 |               |            |            |                            |                      |        |
| Peak Day Factor <sup>(G)</sup>                                                 | 1.25      |                                                                                 |               |            |            |                            |                      |        |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 2.1% reduction in NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 44.5 kl/d.

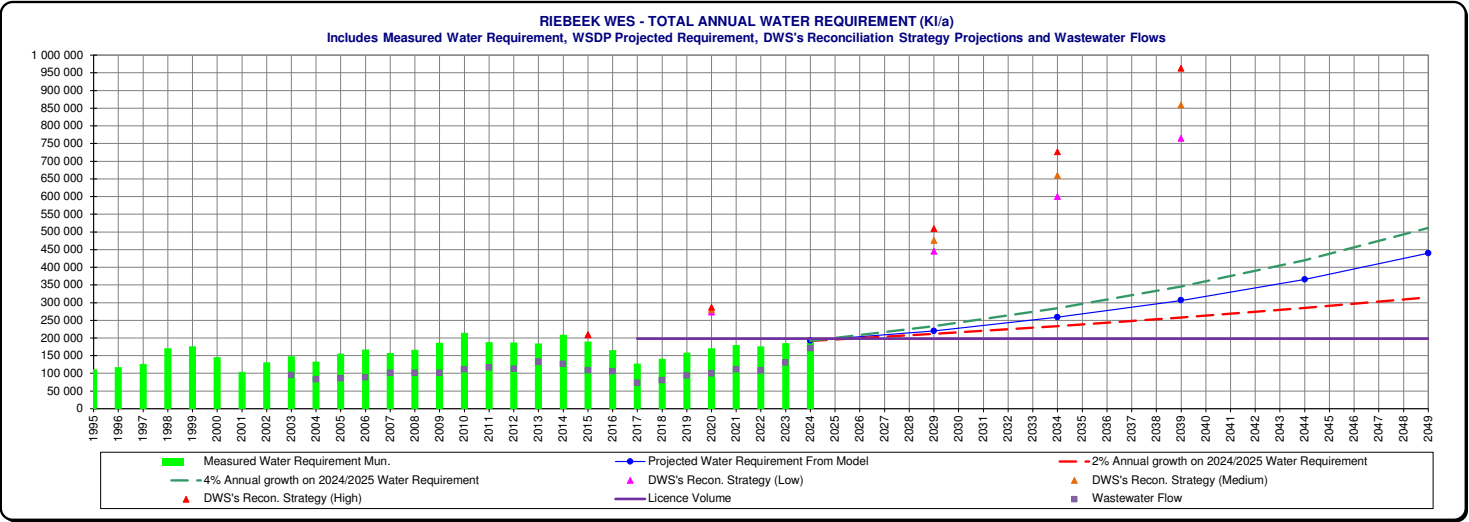
(E) - Others: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 58.7 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

| Riebeek Wes Distribution System Projected Water Requirement (Kl/a) |                                                          |                                        |                                                 |                                                 |                                            |         | Wastewater Flow |
|--------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------|---------|-----------------|
| Year *                                                             | Measured Potable Water Requirement (System Input Volume) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections                          |         |                 |
|                                                                    |                                                          |                                        |                                                 |                                                 | DWS's Reconciliation Strategy (March 2016) |         |                 |
|                                                                    |                                                          |                                        |                                                 |                                                 | Low                                        | Medium  | High            |
| 1995                                                               | 111 087                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 1996                                                               | 117 579                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 1997                                                               | 126 563                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 1998                                                               | 171 100                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 1999                                                               | 175 863                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 2000                                                               | 145 872                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 2001                                                               | 103 715                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 2002                                                               | 131 151                                                  |                                        |                                                 |                                                 |                                            |         |                 |
| 2003                                                               | 148 353                                                  |                                        |                                                 |                                                 |                                            |         | 94 875          |
| 2004                                                               | 132 657                                                  |                                        |                                                 |                                                 |                                            |         | 82 862          |
| 2005                                                               | 155 286                                                  |                                        |                                                 |                                                 |                                            |         | 85 751          |
| 2006                                                               | 167 235                                                  |                                        |                                                 |                                                 |                                            |         | 88 514          |
| 2007                                                               | 157 435                                                  |                                        |                                                 |                                                 |                                            |         | 101 463         |
| 2008                                                               | 166 745                                                  |                                        |                                                 |                                                 |                                            |         | 101 611         |
| 2009                                                               | 186 384                                                  |                                        |                                                 |                                                 |                                            |         | 101 556         |
| 2010                                                               | 214 216                                                  |                                        |                                                 |                                                 |                                            |         | 111 304         |
| 2011                                                               | 188 371                                                  |                                        |                                                 |                                                 |                                            |         | 116 687         |
| 2012                                                               | 186 744                                                  |                                        |                                                 |                                                 |                                            |         | 113 085         |
| 2013                                                               | 184 210                                                  |                                        |                                                 |                                                 |                                            |         | 132 756         |
| 2014                                                               | 209 227                                                  |                                        |                                                 |                                                 |                                            |         | 126 772         |
| 2015                                                               | 189 440                                                  |                                        |                                                 |                                                 | 209 000                                    | 209 000 | 108 615         |
| 2016                                                               | 165 162                                                  |                                        |                                                 |                                                 |                                            |         | 105 971         |
| 2017                                                               | 127 127                                                  |                                        |                                                 |                                                 |                                            |         | 72 661          |
| 2018                                                               | 140 524                                                  |                                        |                                                 |                                                 |                                            |         | 80 676          |
| 2019                                                               | 157 908                                                  |                                        |                                                 |                                                 |                                            |         | 93 477          |
| 2020                                                               | 171 006                                                  |                                        |                                                 |                                                 | 273 000                                    | 280 000 | 99 427          |
| 2021                                                               | 179 456                                                  |                                        |                                                 |                                                 |                                            |         | 110 866         |
| 2022                                                               | 176 547                                                  |                                        |                                                 |                                                 |                                            |         | 107 841         |
| 2023                                                               | 185 545                                                  |                                        |                                                 |                                                 |                                            |         | 130 278         |
| 2024                                                               | 191 771                                                  | 192 741                                | 191 771                                         | 191 771                                         |                                            |         | 170 484         |
| 2029                                                               |                                                          | 219 797                                | 211 731                                         | 233 319                                         | 445 000                                    | 475 800 |                 |
| 2034                                                               |                                                          | 258 467                                | 233 768                                         | 283 868                                         | 599 400                                    | 659 800 |                 |
| 2039                                                               |                                                          | 306 204                                | 258 099                                         | 345 369                                         | 764 900                                    | 858 300 |                 |
| 2044                                                               |                                                          | 365 554                                | 284 862                                         | 420 194                                         |                                            |         |                 |
| 2049                                                               |                                                          | 439 846                                | 314 621                                         | 511 230                                         |                                            |         |                 |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



| Ongegund (PPC) Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                      |       |
|----------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|----------------------|-------|
| Parameter / Variable                                                             | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other <sup>(E)</sup> | Total |
|                                                                                  |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                      |       |
|                                                                                  |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                      |       |
| Population <sup>(A)</sup>                                                        | 2024      | 261                                                                             | 57            | 57         | 374        | -                          | -                    | -     |
|                                                                                  | 2029      | 275                                                                             | 63            | 97         | 434        |                            |                      |       |
|                                                                                  | 2034      | 289                                                                             | 69            | 146        | 503        |                            |                      |       |
|                                                                                  | 2039      | 303                                                                             | 76            | 204        | 583        |                            |                      |       |
|                                                                                  | 2044      | 319                                                                             | 84            | 273        | 676        |                            |                      |       |
|                                                                                  | 2049      | 335                                                                             | 93            | 356        | 784        |                            |                      |       |
| Growth (%/year)                                                                  |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                      | -     |
|                                                                                  | 2024-2029 | 1.00%                                                                           | 2.00%         | 11.38%     | 3.00%      | 4%                         | 2%                   |       |
|                                                                                  | 2029-2034 | 1.00%                                                                           | 2.00%         | 8.46%      | 3.00%      | 4%                         | 2%                   |       |
|                                                                                  | 2034-2039 | 1.00%                                                                           | 2.00%         | 6.96%      | 3.00%      | 4%                         | 2%                   |       |
|                                                                                  | 2039-2044 | 1.00%                                                                           | 2.00%         | 6.04%      | 3.00%      | 4%                         | 2%                   |       |
|                                                                                  | 2044-2049 | 1.00%                                                                           | 2.00%         | 5.43%      | 3.00%      | 4%                         | 2%                   |       |
| Unit Demand (l/c/d) <sup>(B)</sup>                                               | 2024      | 140.0                                                                           | 85.0          | 60.0       | -          | -                          | -                    | -     |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                     | 2024      | 37                                                                              | 5             | 3          | -          | 6                          | 0                    | 51    |
|                                                                                  | 2029      | 38                                                                              | 5             | 6          |            | 7                          | 0                    | 57    |
|                                                                                  | 2034      | 40                                                                              | 6             | 9          |            | 9                          | 0                    | 64    |
|                                                                                  | 2039      | 42                                                                              | 6             | 12         |            | 10                         | 0                    | 72    |
|                                                                                  | 2044      | 45                                                                              | 7             | 16         |            | 13                         | 0                    | 81    |
|                                                                                  | 2049      | 47                                                                              | 8             | 21         |            | 15                         | 0                    | 92    |
| NRW (%) <sup>(C)</sup>                                                           | 2024      | 19.0                                                                            | 19.0          | 19.0       | -          | 19.0                       | 19.0                 | -     |
|                                                                                  | 2029      | 15.0                                                                            | 15.0          | 15.0       |            | 15.0                       | 15.0                 |       |
|                                                                                  | 2034      | 13.8                                                                            | 13.8          | 13.8       |            | 13.8                       | 13.8                 |       |
|                                                                                  | 2039      | 12.5                                                                            | 12.5          | 12.5       |            | 12.5                       | 12.5                 |       |
|                                                                                  | 2044      | 11.3                                                                            | 11.3          | 11.3       |            | 11.3                       | 11.3                 |       |
|                                                                                  | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |       |
| Average Annual Daily Water Requirement (Kl/d)                                    | 2024      | 45                                                                              | 6             | 4          | -          | 7                          | 0                    | 62    |
|                                                                                  | 2029      | 45                                                                              | 6             | 7          |            | 8                          | 0                    | 67    |
|                                                                                  | 2034      | 47                                                                              | 7             | 10         |            | 10                         | 0                    | 74    |
|                                                                                  | 2039      | 49                                                                              | 7             | 14         |            | 12                         | 0                    | 82    |
|                                                                                  | 2044      | 50                                                                              | 8             | 18         |            | 14                         | 0                    | 91    |
|                                                                                  | 2049      | 52                                                                              | 9             | 24         |            | 17                         | 0                    | 102   |
| Average Peak Month Daily Water Requirement (Kl/d)                                | 2024      | 72                                                                              | 9             | 7          | -          | 11                         | 0                    | 99    |
|                                                                                  | 2029      | 72                                                                              | 10            | 11         |            | 13                         | 0                    | 106   |
|                                                                                  | 2034      | 74                                                                              | 11            | 16         |            | 16                         | 0                    | 117   |
|                                                                                  | 2039      | 77                                                                              | 12            | 22         |            | 19                         | 0                    | 130   |
|                                                                                  | 2044      | 80                                                                              | 13            | 29         |            | 23                         | 0                    | 145   |
|                                                                                  | 2049      | 83                                                                              | 14            | 38         |            | 27                         | 0                    | 162   |
| Peak Day Water Requirement (Kl/d)                                                | 2024      | 90                                                                              | 12            | 8          | -          | 14                         | 0                    | 124   |
|                                                                                  | 2029      | 90                                                                              | 12            | 14         |            | 16                         | 0                    | 132   |
|                                                                                  | 2034      | 93                                                                              | 14            | 20         |            | 20                         | 0                    | 147   |
|                                                                                  | 2039      | 96                                                                              | 15            | 28         |            | 24                         | 0                    | 163   |
|                                                                                  | 2044      | 100                                                                             | 16            | 37         |            | 28                         | 0                    | 181   |
|                                                                                  | 2049      | 104                                                                             | 17            | 47         |            | 34                         | 0                    | 202   |
| Total Annual Water Requirement (Kl/year)                                         | 2024      | 16480                                                                           | 2169          | 1531       | -          | 2614                       | 0                    | 22794 |
|                                                                                  | 2029      | 16506                                                                           | 2282          | 2500       |            | 3030                       | 0                    | 24318 |
|                                                                                  | 2034      | 17096                                                                           | 2483          | 3699       |            | 3633                       | 0                    | 26911 |
|                                                                                  | 2039      | 17712                                                                           | 2702          | 5104       |            | 4357                       | 0                    | 29875 |
|                                                                                  | 2044      | 18353                                                                           | 2941          | 6748       |            | 5227                       | 0                    | 33269 |
|                                                                                  | 2049      | 19021                                                                           | 3202          | 8667       |            | 6271                       | 0                    | 37161 |
| Peak Month Factor <sup>(F)</sup>                                                 | 1.59      |                                                                                 |               |            |            |                            |                      |       |
| Peak Day Factor <sup>(G)</sup>                                                   | 1.25      |                                                                                 |               |            |            |                            |                      |       |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 4.0% reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 5.8 kl/d.

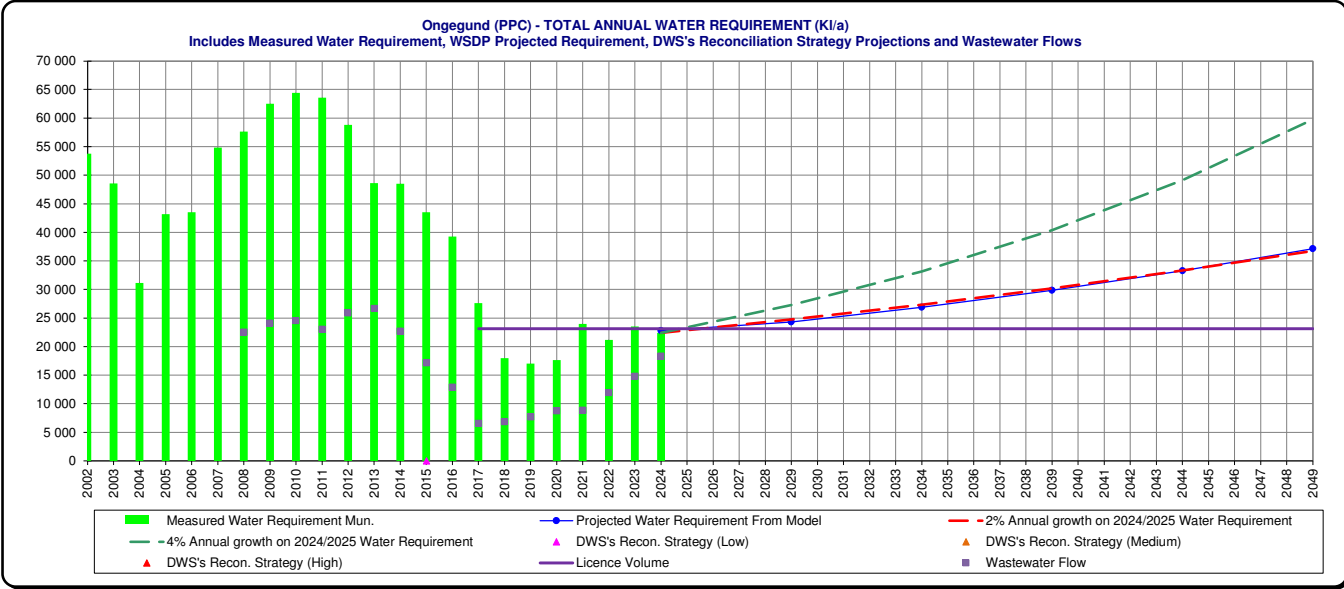
(E) - Others: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 0.0 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

| Ongegend (PPC) Distribution System Projected Water Requirements (Kl/a) |                                                          |                                        |                                                 |                                                 |                                            |        |      | Wastewater Flow                                                          |
|------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------|--------|------|--------------------------------------------------------------------------|
| Year *                                                                 | Measured Potable Water Requirement (System Input Volume) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections                          |        |      | Annual Wastewater Flows (Estimated from Billed Metered Consumption Data) |
|                                                                        |                                                          |                                        |                                                 |                                                 | DWS's Reconciliation Strategy (March 2016) |        |      |                                                                          |
|                                                                        |                                                          |                                        |                                                 |                                                 | Low                                        | Medium | High |                                                                          |
| 2001                                                                   |                                                          |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2002                                                                   | 53 765                                                   |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2003                                                                   | 48 600                                                   |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2004                                                                   | 31 170                                                   |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2005                                                                   | 43 225                                                   |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2006                                                                   | 43 555                                                   |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2007                                                                   | 54 875                                                   |                                        |                                                 |                                                 |                                            |        |      |                                                                          |
| 2008                                                                   | 57 676                                                   |                                        |                                                 |                                                 |                                            |        |      | 22 528                                                                   |
| 2009                                                                   | 62 512                                                   |                                        |                                                 |                                                 |                                            |        |      | 24 116                                                                   |
| 2010                                                                   | 64 439                                                   |                                        |                                                 |                                                 |                                            |        |      | 24 578                                                                   |
| 2011                                                                   | 63 600                                                   |                                        |                                                 |                                                 |                                            |        |      | 23 018                                                                   |
| 2012                                                                   | 58 857                                                   |                                        |                                                 |                                                 |                                            |        |      | 25 872                                                                   |
| 2013                                                                   | 48 614                                                   |                                        |                                                 |                                                 |                                            |        |      | 26 692                                                                   |
| 2014                                                                   | 48 539                                                   |                                        |                                                 |                                                 |                                            |        |      | 22 678                                                                   |
| 2015                                                                   | 43 529                                                   |                                        |                                                 |                                                 |                                            |        |      | 17 138                                                                   |
| 2016                                                                   | 39 286                                                   |                                        |                                                 |                                                 |                                            |        |      | 12 923                                                                   |
| 2017                                                                   | 27 612                                                   |                                        |                                                 |                                                 |                                            |        |      | 6 574                                                                    |
| 2018                                                                   | 18 004                                                   |                                        |                                                 |                                                 |                                            |        |      | 6 875                                                                    |
| 2019                                                                   | 17 033                                                   |                                        |                                                 |                                                 |                                            |        |      | 7 678                                                                    |
| 2020                                                                   | 17 662                                                   |                                        |                                                 |                                                 |                                            |        |      | 8 752                                                                    |
| 2021                                                                   | 24 013                                                   |                                        |                                                 |                                                 |                                            |        |      | 8 879                                                                    |
| 2022                                                                   | 21 200                                                   |                                        |                                                 |                                                 |                                            |        |      | 11 964                                                                   |
| 2023                                                                   | 23 534                                                   |                                        |                                                 |                                                 |                                            |        |      | 14 820                                                                   |
| 2024                                                                   | 22 419                                                   |                                        |                                                 |                                                 |                                            |        |      | 18 355                                                                   |
| 2029                                                                   |                                                          | 22 794                                 | 22 419                                          | 22 419                                          |                                            |        |      |                                                                          |
| 2034                                                                   |                                                          | 24 318                                 | 24 752                                          | 27 276                                          |                                            |        |      |                                                                          |
| 2039                                                                   |                                                          | 26 911                                 | 27 329                                          | 33 186                                          |                                            |        |      |                                                                          |
| 2044                                                                   |                                                          | 29 875                                 | 30 173                                          | 40 375                                          |                                            |        |      |                                                                          |
| 2049                                                                   |                                                          | 33 269                                 | 33 313                                          | 49 123                                          |                                            |        |      |                                                                          |
|                                                                        |                                                          | 37 161                                 | 36 781                                          | 59 765                                          |                                            |        |      |                                                                          |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.





| Koringberg Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                      |        |
|------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|----------------------|--------|
| Parameter / Variable                                                         | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other <sup>(E)</sup> | Total  |
|                                                                              |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                      |        |
|                                                                              |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                      |        |
| Population <sup>(A)</sup>                                                    | 2024      | 375                                                                             | 1494          | 153        | 2021       | -                          | -                    | -      |
|                                                                              | 2029      | 404                                                                             | 1690          | 365        | 2459       |                            |                      |        |
|                                                                              | 2034      | 435                                                                             | 1912          | 645        | 2992       |                            |                      |        |
|                                                                              | 2039      | 469                                                                             | 2163          | 1008       | 3640       |                            |                      |        |
|                                                                              | 2044      | 505                                                                             | 2448          | 1476       | 4429       |                            |                      |        |
|                                                                              | 2049      | 544                                                                             | 2769          | 2075       | 5389       |                            |                      |        |
| Growth (%/year)                                                              |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                      | -      |
|                                                                              | 2024-2029 | 1.50%                                                                           | 2.50%         | 19.07%     | 4.00%      | 4%                         | 2%                   |        |
|                                                                              | 2029-2034 | 1.50%                                                                           | 2.50%         | 12.04%     | 4.00%      | 4%                         | 2%                   |        |
|                                                                              | 2034-2039 | 1.50%                                                                           | 2.50%         | 9.35%      | 4.00%      | 4%                         | 2%                   |        |
|                                                                              | 2039-2044 | 1.50%                                                                           | 2.50%         | 7.93%      | 4.00%      | 4%                         | 2%                   |        |
|                                                                              | 2044-2049 | 1.50%                                                                           | 2.50%         | 7.05%      | 4.00%      | 4%                         | 2%                   |        |
| Unit Demand (l/c/d) <sup>(B)</sup>                                           | 2024      | 90.0                                                                            | 60.0          | 50.0       | -          | -                          | -                    | -      |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                 | 2024      | 34                                                                              | 90            | 8          | -          | 18                         | 8                    | 156    |
|                                                                              | 2029      | 36                                                                              | 101           | 18         |            | 21                         | 8                    | 186    |
|                                                                              | 2034      | 39                                                                              | 115           | 32         |            | 26                         | 9                    | 221    |
|                                                                              | 2039      | 42                                                                              | 130           | 50         |            | 32                         | 10                   | 264    |
|                                                                              | 2044      | 45                                                                              | 147           | 74         |            | 38                         | 11                   | 316    |
|                                                                              | 2049      | 49                                                                              | 166           | 104        |            | 47                         | 12                   | 378    |
| NRW (%) <sup>(C)</sup>                                                       | 2024      | 17.5                                                                            | 17.5          | 17.5       | -          | 17.5                       | 17.5                 | -      |
|                                                                              | 2029      | 15.0                                                                            | 15.0          | 15.0       |            | 15.0                       | 15.0                 |        |
|                                                                              | 2034      | 13.8                                                                            | 13.8          | 13.8       |            | 13.8                       | 13.8                 |        |
|                                                                              | 2039      | 12.5                                                                            | 12.5          | 12.5       |            | 12.5                       | 12.5                 |        |
|                                                                              | 2044      | 11.3                                                                            | 11.3          | 11.3       |            | 11.3                       | 11.3                 |        |
|                                                                              | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
| Average Annual Daily Water Requirement (Kl/d)                                | 2024      | 41                                                                              | 109           | 9          | -          | 21                         | 9                    | 189    |
|                                                                              | 2029      | 43                                                                              | 119           | 21         |            | 25                         | 10                   | 218    |
|                                                                              | 2034      | 45                                                                              | 133           | 37         |            | 30                         | 11                   | 256    |
|                                                                              | 2039      | 48                                                                              | 148           | 58         |            | 36                         | 12                   | 302    |
|                                                                              | 2044      | 51                                                                              | 165           | 83         |            | 43                         | 13                   | 356    |
|                                                                              | 2049      | 54                                                                              | 185           | 115        |            | 52                         | 14                   | 420    |
| Average Peak Month Daily Water Requirement (Kl/d)                            | 2024      | 74                                                                              | 197           | 17         | -          | 38                         | 16                   | 342    |
|                                                                              | 2029      | 77                                                                              | 216           | 39         |            | 45                         | 18                   | 395    |
|                                                                              | 2034      | 82                                                                              | 241           | 68         |            | 54                         | 19                   | 464    |
|                                                                              | 2039      | 87                                                                              | 269           | 104        |            | 65                         | 21                   | 546    |
|                                                                              | 2044      | 93                                                                              | 300           | 151        |            | 78                         | 23                   | 644    |
|                                                                              | 2049      | 98                                                                              | 334           | 209        |            | 94                         | 25                   | 760    |
| Peak Day Water Requirement (Kl/d)                                            | 2024      | 93                                                                              | 246           | 21         | -          | 48                         | 21                   | 428    |
|                                                                              | 2029      | 97                                                                              | 270           | 49         |            | 57                         | 22                   | 494    |
|                                                                              | 2034      | 103                                                                             | 301           | 85         |            | 68                         | 24                   | 580    |
|                                                                              | 2039      | 109                                                                             | 336           | 130        |            | 81                         | 26                   | 683    |
|                                                                              | 2044      | 116                                                                             | 374           | 188        |            | 98                         | 28                   | 805    |
|                                                                              | 2049      | 123                                                                             | 418           | 261        |            | 117                        | 31                   | 950    |
| Total Annual Water Requirement (Kl/year)                                     | 2024      | 14931                                                                           | 39654         | 3376       | -          | 7742                       | 3318                 | 69021  |
|                                                                              | 2029      | 15611                                                                           | 43545         | 7843       |            | 9143                       | 3556                 | 79698  |
|                                                                              | 2034      | 16574                                                                           | 48553         | 13643      |            | 10962                      | 3869                 | 93602  |
|                                                                              | 2039      | 17600                                                                           | 54149         | 21027      |            | 13147                      | 4211                 | 110133 |
|                                                                              | 2044      | 18693                                                                           | 60402         | 30358      |            | 15770                      | 4583                 | 129806 |
|                                                                              | 2049      | 19858                                                                           | 67390         | 42081      |            | 18920                      | 4990                 | 153239 |
| Peak Month Factor <sup>(F)</sup>                                             | 1.81      |                                                                                 |               |            |            |                            |                      |        |
| Peak Day Factor <sup>(G)</sup>                                               | 1.25      |                                                                                 |               |            |            |                            |                      |        |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 2.5 % reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 17.5 kl/d.

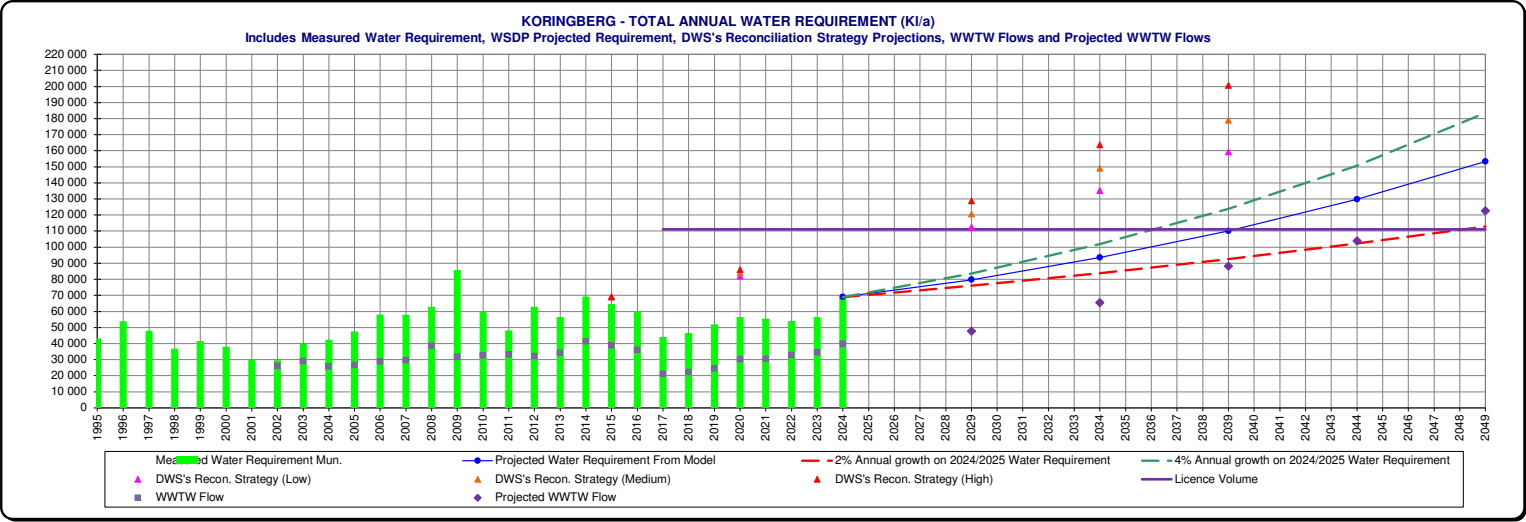
(E) - Others: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 7.5 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

| Koringberg Distribution System Projected Water Requirements (Kl/a) |                                                   |                                        |                                                 |                                                 |                                            |         |         | WWTW Flow and Projections (Kl/a)                                  |                                       |                     |
|--------------------------------------------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------|---------|---------|-------------------------------------------------------------------|---------------------------------------|---------------------|
| Year *                                                             | Measured Potable Water Requirement (System Input) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections                          |         |         | Annual WWTW Flow (Estimated from Billed Metered Consumption Data) | Percentage (WWTW Flow / System Input) | Projected WWTW Flow |
|                                                                    |                                                   |                                        |                                                 |                                                 | DWS's Reconciliation Strategy (March 2016) |         |         |                                                                   |                                       |                     |
|                                                                    |                                                   |                                        |                                                 |                                                 | Low                                        | Medium  | High    |                                                                   |                                       |                     |
| 1995                                                               | 43 050                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 1996                                                               | 53 931                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 1997                                                               | 47 897                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 1998                                                               | 36 821                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 1999                                                               | 41 534                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 2000                                                               | 38 066                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 2001                                                               | 30 064                                            |                                        |                                                 |                                                 |                                            |         |         |                                                                   |                                       |                     |
| 2002                                                               | 29 589                                            |                                        |                                                 |                                                 |                                            |         |         | 25 970                                                            | 87.77%                                |                     |
| 2003                                                               | 39 878                                            |                                        |                                                 |                                                 |                                            |         |         | 28 931                                                            | 72.55%                                |                     |
| 2004                                                               | 42 388                                            |                                        |                                                 |                                                 |                                            |         |         | 25 544                                                            | 60.26%                                |                     |
| 2005                                                               | 47 543                                            |                                        |                                                 |                                                 |                                            |         |         | 26 668                                                            | 56.09%                                |                     |
| 2006                                                               | 58 136                                            |                                        |                                                 |                                                 |                                            |         |         | 28 866                                                            | 49.65%                                |                     |
| 2007                                                               | 57 829                                            |                                        |                                                 |                                                 |                                            |         |         | 29 578                                                            | 51.15%                                |                     |
| 2008                                                               | 62 809                                            |                                        |                                                 |                                                 |                                            |         |         | 38 561                                                            | 61.39%                                |                     |
| 2009                                                               | 85 766                                            |                                        |                                                 |                                                 |                                            |         |         | 31 698                                                            | 37.19%                                |                     |
| 2010                                                               | 59 952                                            |                                        |                                                 |                                                 |                                            |         |         | 32 616                                                            | 54.40%                                |                     |
| 2011                                                               | 48 167                                            |                                        |                                                 |                                                 |                                            |         |         | 33 156                                                            | 68.83%                                |                     |
| 2012                                                               | 62 777                                            |                                        |                                                 |                                                 |                                            |         |         | 32 247                                                            | 51.37%                                |                     |
| 2013                                                               | 56 396                                            |                                        |                                                 |                                                 |                                            |         |         | 34 115                                                            | 60.49%                                |                     |
| 2014                                                               | 69 202                                            |                                        |                                                 |                                                 |                                            |         |         | 41 287                                                            | 59.66%                                |                     |
| 2015                                                               | 64 578                                            |                                        |                                                 |                                                 | 69 000                                     | 69 000  | 69 000  | 38 802                                                            | 60.09%                                |                     |
| 2016                                                               | 60 128                                            |                                        |                                                 |                                                 |                                            |         |         | 35 886                                                            | 59.68%                                |                     |
| 2017                                                               | 44 157                                            |                                        |                                                 |                                                 |                                            |         |         | 20 961                                                            | 47.47%                                |                     |
| 2018                                                               | 46 609                                            |                                        |                                                 |                                                 |                                            |         |         | 22 341                                                            | 47.93%                                |                     |
| 2019                                                               | 51 908                                            |                                        |                                                 |                                                 |                                            |         |         | 24 452                                                            | 47.11%                                |                     |
| 2020                                                               | 56 412                                            |                                        |                                                 |                                                 | 82 000                                     | 84 000  | 86 000  | 30 112                                                            | 53.38%                                |                     |
| 2021                                                               | 55 417                                            |                                        |                                                 |                                                 |                                            |         |         | 30 323                                                            | 54.72%                                |                     |
| 2022                                                               | 54 168                                            |                                        |                                                 |                                                 |                                            |         |         | 32 782                                                            | 60.52%                                |                     |
| 2023                                                               | 56 505                                            |                                        |                                                 |                                                 |                                            |         |         | 34 386                                                            | 60.85%                                |                     |
| 2024                                                               | 68 802                                            | 69 021                                 | 68 802                                          | 68 802                                          |                                            |         |         | 39 751                                                            | 57.78%                                |                     |
| 2029                                                               |                                                   | 79 698                                 | 75 963                                          | 83 708                                          | 112 400                                    | 120 600 | 128 800 |                                                                   | 60.00%                                | 47 819              |
| 2034                                                               |                                                   | 93 602                                 | 83 869                                          | 101 844                                         | 135 200                                    | 149 000 | 163 600 |                                                                   | 70.00%                                | 65 522              |
| 2039                                                               |                                                   | 110 133                                | 92 598                                          | 123 909                                         | 159 200                                    | 179 000 |         |                                                                   | 80.00%                                | 88 107              |
| 2044                                                               |                                                   | 129 806                                | 102 236                                         | 150 754                                         |                                            |         | 200 600 |                                                                   | 80.00%                                | 103 845             |
| 2049                                                               |                                                   | 153 239                                | 112 877                                         | 183 415                                         |                                            |         |         |                                                                   | 80.00%                                | 122 591             |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



| Yzerfontein Distribution System - Input Variables for Water Requirement Model |           |                                                                                 |               |            |            |                            |                      |        |
|-------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|------------|------------|----------------------------|----------------------|--------|
| Parameter / Variable                                                          | Year      | Income Categorization                                                           |               |            |            | Com. & Ind. <sup>(D)</sup> | Other <sup>(E)</sup> | Total  |
|                                                                               |           | High Income                                                                     | Middle Income | Low Income | Sub- Total |                            |                      |        |
|                                                                               |           | Units are presented in brackets with the "Parameter Description" - First Column |               |            |            |                            |                      |        |
| Population <sup>(A)</sup>                                                     | 2024      | 1077                                                                            | 333           | 488        | 1898       | -                          | -                    | -      |
|                                                                               | 2029      | 1160                                                                            | 386           | 763        | 2309       |                            |                      |        |
|                                                                               | 2034      | 1250                                                                            | 448           | 1112       | 2810       |                            |                      |        |
|                                                                               | 2039      | 1346                                                                            | 519           | 1553       | 3419       |                            |                      |        |
|                                                                               | 2044      | 1450                                                                            | 602           | 2107       | 4159       |                            |                      |        |
|                                                                               | 2049      | 1562                                                                            | 698           | 2800       | 5060       |                            |                      |        |
| Growth (%/year)                                                               |           | Growth in Population                                                            |               |            |            | Growth in Demand           |                      | -      |
|                                                                               | 2024-2029 | 1.50%                                                                           | 3.00%         | 9.35%      | 4.00%      | 4%                         | 2%                   |        |
|                                                                               | 2029-2034 | 1.50%                                                                           | 3.00%         | 7.83%      | 4.00%      | 4%                         | 2%                   |        |
|                                                                               | 2034-2039 | 1.50%                                                                           | 3.00%         | 6.90%      | 4.00%      | 4%                         | 2%                   |        |
|                                                                               | 2039-2044 | 1.50%                                                                           | 3.00%         | 6.29%      | 4.00%      | 4%                         | 2%                   |        |
|                                                                               | 2044-2049 | 1.50%                                                                           | 3.00%         | 5.85%      | 4.00%      | 4%                         | 2%                   |        |
| Unit Demand (l/c/d) <sup>(B)</sup>                                            | 2024      | 395.0                                                                           | 290.0         | 180.0      | -          | -                          | -                    | -      |
| Average Annual Daily Water Requirement (Kl/d - NRW Excluded)                  | 2024      | 425                                                                             | 97            | 88         | -          | 48                         | 181                  | 839    |
|                                                                               | 2029      | 458                                                                             | 112           | 137        |            | 59                         | 200                  | 966    |
|                                                                               | 2034      | 494                                                                             | 130           | 200        |            | 71                         | 221                  | 1116   |
|                                                                               | 2039      | 532                                                                             | 151           | 280        |            | 87                         | 244                  | 1292   |
|                                                                               | 2044      | 573                                                                             | 174           | 379        |            | 106                        | 269                  | 1501   |
|                                                                               | 2049      | 617                                                                             | 202           | 504        |            | 128                        | 297                  | 1749   |
| NRW (%) <sup>(C)</sup>                                                        | 2024      | 12.6                                                                            | 12.6          | 12.6       | -          | 12.6                       | 12.6                 | -      |
|                                                                               | 2029      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                               | 2034      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                               | 2039      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                               | 2044      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
|                                                                               | 2049      | 10.0                                                                            | 10.0          | 10.0       |            | 10.0                       | 10.0                 |        |
| Average Annual Daily Water Requirement (Kl/d)                                 | 2024      | 487                                                                             | 111           | 101        | -          | 55                         | 207                  | 960    |
|                                                                               | 2029      | 509                                                                             | 124           | 153        |            | 65                         | 222                  | 1074   |
|                                                                               | 2034      | 548                                                                             | 144           | 222        |            | 79                         | 245                  | 1240   |
|                                                                               | 2039      | 591                                                                             | 167           | 311        |            | 96                         | 271                  | 1436   |
|                                                                               | 2044      | 637                                                                             | 194           | 421        |            | 117                        | 299                  | 1668   |
|                                                                               | 2049      | 686                                                                             | 225           | 560        |            | 143                        | 330                  | 1943   |
| Average Peak Month Daily Water Requirement (Kl/d)                             | 2024      | 813                                                                             | 185           | 168        | -          | 92                         | 346                  | 1603   |
|                                                                               | 2029      | 850                                                                             | 208           | 255        |            | 109                        | 371                  | 1793   |
|                                                                               | 2034      | 916                                                                             | 241           | 372        |            | 132                        | 410                  | 2070   |
|                                                                               | 2039      | 987                                                                             | 279           | 519        |            | 161                        | 452                  | 2398   |
|                                                                               | 2044      | 1063                                                                            | 324           | 704        |            | 196                        | 499                  | 2786   |
|                                                                               | 2049      | 1145                                                                            | 375           | 935        |            | 238                        | 551                  | 3246   |
| Peak Day Water Requirement (Kl/d)                                             | 2024      | 1016                                                                            | 231           | 210        | -          | 115                        | 433                  | 2004   |
|                                                                               | 2029      | 1063                                                                            | 260           | 319        |            | 136                        | 464                  | 2241   |
|                                                                               | 2034      | 1145                                                                            | 301           | 464        |            | 165                        | 512                  | 2588   |
|                                                                               | 2039      | 1233                                                                            | 349           | 648        |            | 201                        | 565                  | 2998   |
|                                                                               | 2044      | 1329                                                                            | 405           | 880        |            | 245                        | 624                  | 3482   |
|                                                                               | 2049      | 1431                                                                            | 469           | 1169       |            | 298                        | 689                  | 4057   |
| Total Annual Water Requirement (Kl/year)                                      | 2024      | 177635                                                                          | 40345         | 36700      | -          | 20129                      | 75631                | 350441 |
|                                                                               | 2029      | 185836                                                                          | 45420         | 55712      |            | 23783                      | 81090                | 391841 |
|                                                                               | 2034      | 200198                                                                          | 52655         | 81202      |            | 28935                      | 89530                | 452520 |
|                                                                               | 2039      | 215670                                                                          | 61041         | 113385     |            | 35204                      | 98849                | 524149 |
|                                                                               | 2044      | 232338                                                                          | 70763         | 153821     |            | 42832                      | 109137               | 608890 |
|                                                                               | 2049      | 250293                                                                          | 82034         | 204423     |            | 52111                      | 120496               | 709357 |
| Peak Month Factor <sup>(F)</sup>                                              | 1.67      |                                                                                 |               |            |            |                            |                      |        |
| Peak Day Factor <sup>(G)</sup>                                                | 1.25      |                                                                                 |               |            |            |                            |                      |        |

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Projected population for 2024/2025 is based on the Census 2011 data and the estimated future population growth, as agreed with Municipality during January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2024 to June 2025. Estimated 2.6% reduction in NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Average 48.2 kl/d.

(E) - Others: Calculated from Billed Metered Consumption data for the period July 2024 to June 2025. Estimated 35.1 kl/d.

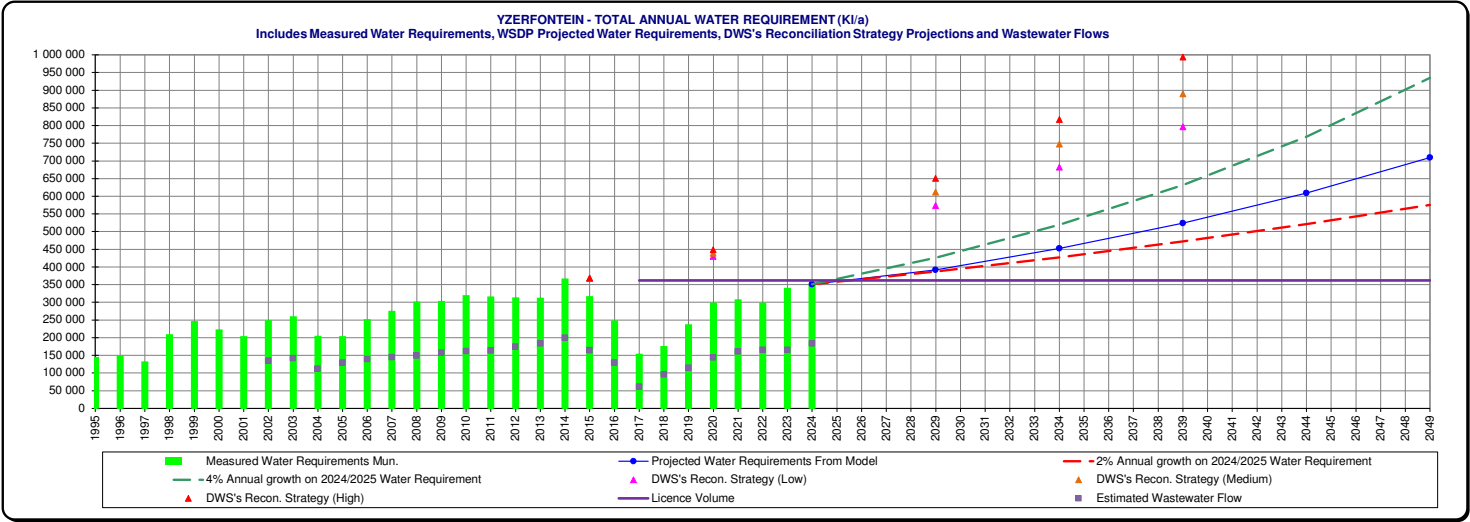
Holiday population usage 24/25: Average residential usage for Nov to Mar 963 kl/d - Apr to Oct 610 kl/d, therefore add (353 kl/d x 151) / 365 = 146.0 kl/d with other users of 35.1 kl/d = 181.1 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2020 to June 2025 data.

(G) - Peak Day Factor : Estimated

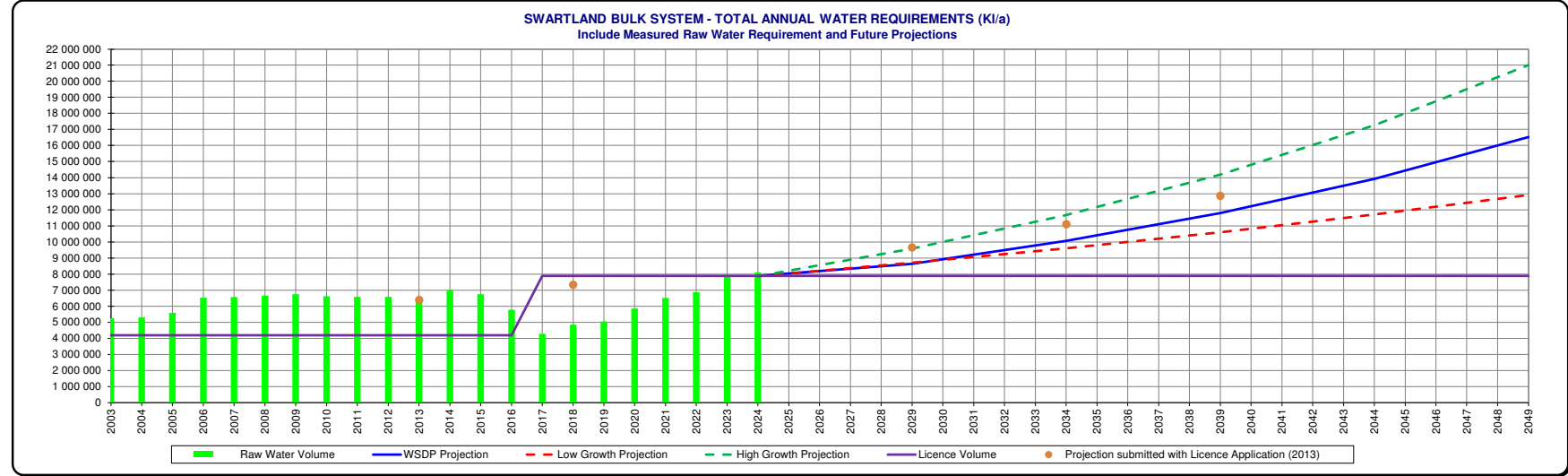
| Yzerfontein Distribution System Projected Water Requirements (Kl/a) |                                                          |                                        |                                                 |                                                 |                                            |        | Wastewater Flow |
|---------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------|-------------------------------------------------|-------------------------------------------------|--------------------------------------------|--------|-----------------|
| Year *                                                              | Measured Potable Water Requirement (System Input Volume) | Projected Water Requirement from model | 2% Annual growth on 2024/2025 Water Requirement | 4% Annual growth on 2024/2025 Water Requirement | Other Projections                          |        |                 |
|                                                                     |                                                          |                                        |                                                 |                                                 | DWS's Reconciliation Strategy (March 2016) |        |                 |
|                                                                     |                                                          |                                        |                                                 |                                                 | Low                                        | Medium | High            |
| 1995                                                                | 145 614                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 1996                                                                | 151 025                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 1997                                                                | 132 745                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 1998                                                                | 205 243                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 1999                                                                | 246 470                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2000                                                                | 223 450                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2001                                                                | 204 690                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2002                                                                | 249 211                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2003                                                                | 260 440                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2004                                                                | 204 773                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2005                                                                | 203 959                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2006                                                                | 251 914                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2007                                                                | 275 702                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2008                                                                | 301 621                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2009                                                                | 303 482                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2010                                                                | 320 386                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2011                                                                | 316 552                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2012                                                                | 313 423                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2013                                                                | 312 719                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2014                                                                | 367 432                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2015                                                                | 317 039                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2016                                                                | 248 845                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2017                                                                | 154 611                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2018                                                                | 175 903                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2019                                                                | 238 116                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2020                                                                | 299 537                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2021                                                                | 308 290                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2022                                                                | 299 729                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2023                                                                | 340 644                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2024                                                                | 350 690                                                  |                                        |                                                 |                                                 |                                            |        |                 |
| 2025                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2026                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2027                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2028                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2029                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2030                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2031                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2032                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2033                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2034                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2035                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2036                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2037                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2038                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2039                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2040                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2041                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2042                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2043                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2044                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2045                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2046                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2047                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2048                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |
| 2049                                                                |                                                          | 350 690                                |                                                 |                                                 |                                            |        |                 |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



| Swartland Bulk Water Distribution System Projected Water Requirements (Kl/a) |                  |                     |                  |                             |                                                        |                  |              |          |         |             |                                                              |                                                                       |            |            |                                                            |            |            |                                                      |
|------------------------------------------------------------------------------|------------------|---------------------|------------------|-----------------------------|--------------------------------------------------------|------------------|--------------|----------|---------|-------------|--------------------------------------------------------------|-----------------------------------------------------------------------|------------|------------|------------------------------------------------------------|------------|------------|------------------------------------------------------|
| Year *                                                                       | Raw Water Supply | System Input Volume | Treatment Losses | Percentage Treatment Losses | System Input Volume Supplied to Swartland Municipality |                  |              |          |         |             | Percentage of Bulk System Input Volume Supplied to Swartland | Total Projected System Input Volumes for all Towns Supplied by System |            |            | Projected Raw Water Requirements for Swartland Bulk System |            |            | Projection submitted with Licence Application (2013) |
|                                                                              |                  |                     |                  |                             | Malmesbury                                             | Riebeeck Kasteel | Riebeeck Wes | Ongegund | Darling | Yzerfontein |                                                              | Total                                                                 | WSDP Model | Low Growth | High Growth                                                | WSDP Model | Low Growth |                                                      |
| 2003                                                                         | 5 267 300        | 4 872 253           | 395 047          | 7.50%                       | 2 477 986                                              | 209 142          | 148 353      | 48 600   | 427 210 | 260 440     | 3 571 731                                                    | 73.31%                                                                |            |            |                                                            |            |            |                                                      |
| 2004                                                                         | 5 310 791        | 4 912 482           | 398 309          | 7.50%                       | 2 332 930                                              | 162 254          | 132 657      | 31 170   | 329 030 | 204 773     | 3 192 814                                                    | 64.99%                                                                |            |            |                                                            |            |            |                                                      |
| 2005                                                                         | 5 587 953        | 5 270 022           | 317 931          | 5.69%                       | 2 431 980                                              | 218 651          | 155 286      | 43 225   | 437 922 | 203 959     | 3 491 023                                                    | 66.24%                                                                |            |            |                                                            |            |            |                                                      |
| 2006                                                                         | 6 536 925        | 6 084 440           | 452 485          | 6.92%                       | 2 720 470                                              | 226 158          | 167 235      | 43 555   | 442 554 | 251 914     | 3 851 886                                                    | 63.31%                                                                |            |            |                                                            |            |            |                                                      |
| 2007                                                                         | 6 572 601        | 6 035 104           | 537 497          | 8.18%                       | 2 960 580                                              | 241 840          | 157 435      | 54 875   | 421 210 | 275 702     | 4 111 642                                                    | 68.13%                                                                |            |            |                                                            |            |            |                                                      |
| 2008                                                                         | 6 661 635        | 6 221 938           | 439 697          | 6.60%                       | 3 071 700                                              | 257 634          | 166 745      | 57 676   | 533 710 | 301 621     | 4 389 086                                                    | 70.54%                                                                |            |            |                                                            |            |            |                                                      |
| 2009                                                                         | 6 761 867        | 6 379 743           | 382 124          | 5.65%                       | 2 844 232                                              | 222 052          | 186 384      | 62 512   | 621 480 | 303 482     | 4 240 142                                                    | 66.46%                                                                |            |            |                                                            |            |            |                                                      |
| 2010                                                                         | 6 636 187        | 6 336 233           | 299 954          | 4.52%                       | 3 009 520                                              | 263 467          | 214 216      | 64 439   | 699 043 | 320 386     | 4 571 071                                                    | 72.14%                                                                |            |            |                                                            |            |            |                                                      |
| 2011                                                                         | 6 592 732        | 6 256 296           | 336 436          | 5.10%                       | 2 921 334                                              | 253 825          | 188 371      | 63 600   | 722 191 | 316 552     | 4 465 873                                                    | 71.38%                                                                |            |            |                                                            |            |            |                                                      |
| 2012                                                                         | 6 595 709        | 6 189 326           | 406 383          | 6.16%                       | 2 915 851                                              | 284 585          | 186 744      | 58 857   | 675 214 | 313 423     | 4 434 674                                                    | 71.65%                                                                |            |            |                                                            |            |            |                                                      |
| 2013                                                                         | 6 497 447        | 6 124 786           | 372 661          | 5.74%                       | 2 893 099                                              | 300 867          | 184 210      | 48 614   | 639 744 | 312 719     | 4 379 253                                                    | 71.50%                                                                |            |            |                                                            |            |            | 6 390 000                                            |
| 2014                                                                         | 6 993 623        | 6 572 495           | 421 128          | 6.02%                       | 3 215 630                                              | 329 440          | 209 227      | 48 539   | 699 379 | 367 432     | 4 869 647                                                    | 74.09%                                                                |            |            |                                                            |            |            |                                                      |
| 2015                                                                         | 6 749 603        | 6 326 667           | 422 936          | 6.27%                       | 3 094 187                                              | 287 140          | 189 440      | 43 529   | 661 330 | 317 039     | 4 592 665                                                    | 72.59%                                                                |            |            |                                                            |            |            |                                                      |
| 2016                                                                         | 5 784 056        | 5 455 098           | 328 958          | 5.69%                       | 2 677 873                                              | 250 636          | 165 162      | 39 286   | 603 442 | 248 845     | 3 985 244                                                    | 73.06%                                                                |            |            |                                                            |            |            |                                                      |
| 2017                                                                         | 4 282 906        | 4 208 092           | 74 814           | 1.75%                       | 1 941 089                                              | 169 061          | 127 127      | 27 612   | 465 322 | 154 611     | 2 884 822                                                    | 68.55%                                                                |            |            |                                                            |            |            |                                                      |
| 2018                                                                         | 4 866 029        | 4 770 391           | 95 638           | 1.97%                       | 2 140 453                                              | 183 446          | 140 524      | 18 004   | 491 479 | 175 903     | 3 149 809                                                    | 66.03%                                                                |            |            |                                                            |            |            | 7 335 000                                            |
| 2019                                                                         | 5 056 347        | 4 920 110           | 136 237          | 2.69%                       | 2 495 858                                              | 223 405          | 157 908      | 17 033   | 518 097 | 238 116     | 3 650 417                                                    | 74.19%                                                                |            |            |                                                            |            |            |                                                      |
| 2020                                                                         | 5 866 143        | 5 732 805           | 133 338          | 2.27%                       | 2 908 899                                              | 256 218          | 171 006      | 17 662   | 570 859 | 299 537     | 4 224 181                                                    | 73.68%                                                                |            |            |                                                            |            |            |                                                      |
| 2021                                                                         | 6 515 111        | 6 241 020           | 274 091          | 4.21%                       | 3 202 898                                              | 330 992          | 179 456      | 24 013   | 602 718 | 308 290     | 4 648 367                                                    | 74.48%                                                                |            |            |                                                            |            |            |                                                      |
| 2022                                                                         | 6 867 064        | 6 682 452           | 204 602          | 2.97%                       | 3 058 934                                              | 397 478          | 176 547      | 21 200   | 602 718 | 299 729     | 4 556 606                                                    | 68.19%                                                                |            |            |                                                            |            |            |                                                      |
| 2023                                                                         | 7 956 390        | 7 520 697           | 435 693          | 5.48%                       | 3 324 313                                              | 407 288          | 185 545      | 23 534   | 531 032 | 340 644     | 4 812 356                                                    | 63.99%                                                                |            |            |                                                            |            |            |                                                      |
| 2024                                                                         | 8 101 510        | 7 658 852           | 442 658          | 5.46%                       | 3 642 956                                              | 387 878          | 191 771      | 22 419   | 628 500 | 350 690     | 5 224 214                                                    | 68.21%                                                                | 5 234 545  | 5 224 214  | 5 224 214                                                  | 7 895 241  | 7 879 659  | 7 879 659                                            |
| 2029                                                                         |                  |                     |                  |                             |                                                        |                  |              |          |         |             |                                                              |                                                                       | 5 720 893  | 5 767 954  | 6 356 055                                                  | 8 628 798  | 8 699 780  | 9 586 810                                            |
| 2034                                                                         |                  |                     |                  |                             |                                                        |                  |              |          |         |             |                                                              |                                                                       | 6 669 202  | 6 368 288  | 7 733 113                                                  | 10 059 129 | 9 605 261  | 11 663 820                                           |
| 2039                                                                         |                  |                     |                  |                             |                                                        |                  |              |          |         |             |                                                              |                                                                       | 7 822 269  | 7 031 104  | 9 408 514                                                  | 11 788 293 | 10 604 364 | 14 190 821                                           |
| 2044                                                                         |                  |                     |                  |                             |                                                        |                  |              |          |         |             |                                                              |                                                                       | 9 231 828  | 7 762 907  | 11 446 896                                                 | 13 924 326 | 11 708 759 | 17 265 303                                           |
| 2049                                                                         |                  |                     |                  |                             |                                                        |                  |              |          |         |             |                                                              |                                                                       | 10 964 166 | 8 570 877  | 13 926 899                                                 | 16 537 204 | 12 927 416 | 21 005 882                                           |

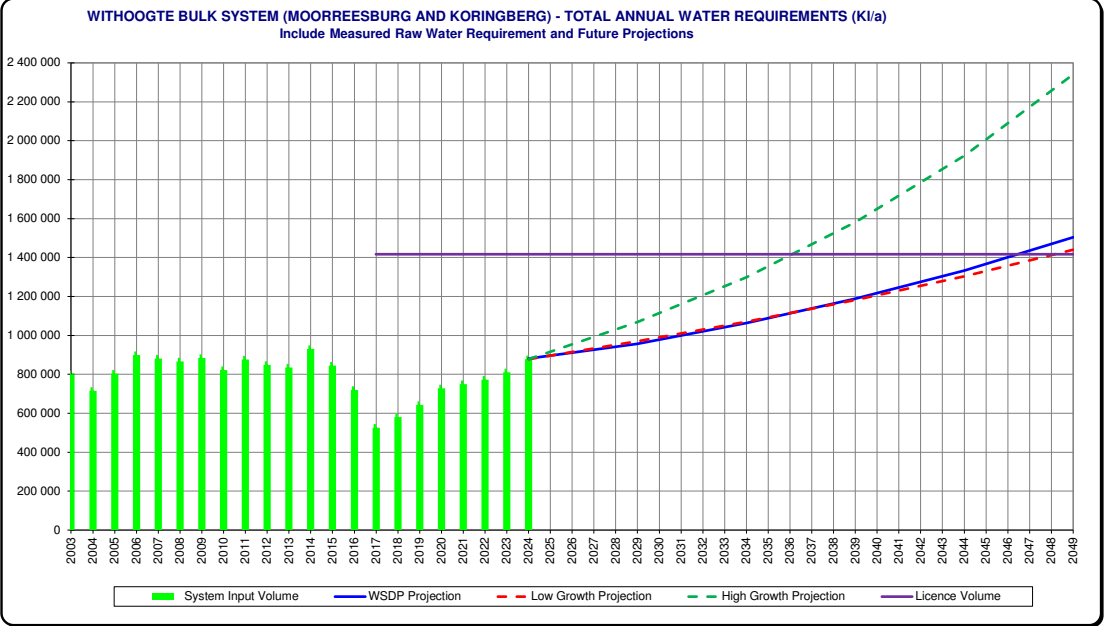
Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.





| Withoogte Bulk Water Distribution System Projected Water Requirements (Moorreesburg and Koringberg) (Kl/a) |                                                        |            |                     |                                                                       |            |             |
|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------------|---------------------|-----------------------------------------------------------------------|------------|-------------|
| Year *                                                                                                     | System Input Volume Supplied to Swartland Municipality |            |                     | Total Projected System Input Volumes for all Towns Supplied by System |            |             |
|                                                                                                            | Moorreesburg                                           | Koringberg | System Input Volume | WSDP Model                                                            | Low Growth | High Growth |
| 2003                                                                                                       | 759 670                                                | 39 878     | 799 548             |                                                                       |            |             |
| 2004                                                                                                       | 672 255                                                | 42 388     | 714 643             |                                                                       |            |             |
| 2005                                                                                                       | 755 340                                                | 47 543     | 802 883             |                                                                       |            |             |
| 2006                                                                                                       | 840 580                                                | 58 136     | 898 716             |                                                                       |            |             |
| 2007                                                                                                       | 822 940                                                | 57 829     | 880 769             |                                                                       |            |             |
| 2008                                                                                                       | 803 680                                                | 62 809     | 866 489             |                                                                       |            |             |
| 2009                                                                                                       | 797 450                                                | 85 766     | 883 216             |                                                                       |            |             |
| 2010                                                                                                       | 762 024                                                | 59 952     | 821 976             |                                                                       |            |             |
| 2011                                                                                                       | 827 492                                                | 48 167     | 875 659             |                                                                       |            |             |
| 2012                                                                                                       | 784 940                                                | 62 777     | 847 717             |                                                                       |            |             |
| 2013                                                                                                       | 778 942                                                | 56 396     | 835 338             |                                                                       |            |             |
| 2014                                                                                                       | 860 288                                                | 69 202     | 929 490             |                                                                       |            |             |
| 2015                                                                                                       | 779 557                                                | 64 578     | 844 135             |                                                                       |            |             |
| 2016                                                                                                       | 659 185                                                | 60 128     | 719 313             |                                                                       |            |             |
| 2017                                                                                                       | 480 789                                                | 44 157     | 524 946             |                                                                       |            |             |
| 2018                                                                                                       | 532 506                                                | 46 609     | 579 115             |                                                                       |            |             |
| 2019                                                                                                       | 590 106                                                | 51 908     | 642 014             |                                                                       |            |             |
| 2020                                                                                                       | 671 591                                                | 56 412     | 728 003             |                                                                       |            |             |
| 2021                                                                                                       | 692 967                                                | 55 417     | 748 384             |                                                                       |            |             |
| 2022                                                                                                       | 718 573                                                | 54 168     | 772 741             |                                                                       |            |             |
| 2023                                                                                                       | 752 853                                                | 56 505     | 809 358             |                                                                       |            |             |
| 2024                                                                                                       | 808 980                                                | 68 802     | 877 782             | 880 859                                                               | 877 782    | 877 782     |
| 2029                                                                                                       |                                                        |            |                     | 957 172                                                               | 969 142    | 1 067 956   |
| 2034                                                                                                       |                                                        |            |                     | 1 063 990                                                             | 1 070 011  | 1 299 332   |
| 2039                                                                                                       |                                                        |            |                     | 1 188 564                                                             | 1 181 379  | 1 560 336   |
| 2044                                                                                                       |                                                        |            |                     | 1 333 903                                                             | 1 304 338  | 1 923 328   |
| 2049                                                                                                       |                                                        |            |                     | 1 503 587                                                             | 1 440 094  | 2 340 023   |

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2024 is therefore from July 2024 up to June 2025.



## **ANNEXURE D**

**Water Quality Compliance Sample Results for 24/25**

**Final Effluent Quality Compliance Sample Results for 24/25**

**Industrial Effluent Quality Compliance Sample Results for 24/25**

| Moorreesburg                                 |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 61                      | 61                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 23.09   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 61                      | 60                          | 98.4%                 | Excellent                          | P/R                                                                                       | Yes                             | 0.46    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 61                      | 61                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 61                      | 60                          | 98.4%                 | Excellent                          | P                                                                                         | Yes                             | 8.50    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 64                      | 64                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 20.48   |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 65                      | 62                          | 95.4%                 | Good                               | P                                                                                         | Yes                             | 0.58    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 65                      | 59                          | 90.8%                 | Good                               | N                                                                                         | Yes                             | 10.95   |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 61                      | 61                          | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.06    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 2                       | 1                           | 50.0%                 | Unacceptable                       |                                                                                           | No                              | 23.00   |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 2                       |                             |                       |                                    |                                                                                           |                                 | 44.60   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 13.85   |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 4.35    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 27.30   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 2.35    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.03    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 39.60   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 7.45    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 146.00  |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 29.50   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | < 100                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 187.50  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.01    |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.50   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.38    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |     |        |           |
|------------------------------|-----|-----|--------|-----------|
| Acute Health Chemical        | 10  | 10  | 100.0% | Excellent |
| Acute Health Microbiological | 69  | 66  | 95.7%  | Good      |
| Chronic Health               | 107 | 107 | 100.0% | Excellent |
| Aesthetic                    | 146 | 145 | 99.3%  | Excellent |
| Operational Efficiency       | 259 | 251 | 96.9%  | Excellent |

| Koringberg                                   |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 48                      | 48                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 44.49   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 48                      | 44                          | 91.7%                 | Good                               | P/R                                                                                       | Yes                             | 0.64    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 48                      | 48                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 48                      | 48                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 7.76    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 44                      | 44                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 29.34   |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 55                      | 50                          | 90.9%                 | Unacceptable                       | P                                                                                         | No                              | 0.64    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 55                      | 45                          | 81.8%                 | Unacceptable                       | N                                                                                         | No                              | 10.25   |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 48                      | 48                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.08    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 48.70   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 15.50   |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 6.70    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 37.10   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 2.80    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.02    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 55.10   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.30   |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 200.00  |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | < 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 149.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 |                         |                             |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               |                         |                             |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               |                         |                             |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.30    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |     |        |              |
|------------------------------|-----|-----|--------|--------------|
| Acute Health Chemical        | 5   | 5   | 100.0% | Excellent    |
| Acute Health Microbiological | 57  | 52  | 91.2%  | Unacceptable |
| Chronic Health               | 71  | 71  | 100.0% | Excellent    |
| Aesthetic                    | 108 | 108 | 100.0% | Excellent    |
| Operational Efficiency       | 199 | 185 | 93.0%  | Excellent    |

| Malmesbury                                   |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 145                     | 145                         | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 11.62   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 145                     | 142                         | 97.9%                 | Excellent                          | P/R                                                                                       | Yes                             | 0.39    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 145                     | 145                         | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 145                     | 129                         | 89.0%                 | Unacceptable                       | P                                                                                         | No                              | 8.96    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 140                     | 140                         | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 9.78    |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 145                     | 145                         | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 147                     | 140                         | 95.2%                 | Excellent                          | N                                                                                         | Yes                             | 3.20    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 143                     | 142                         | 99.3%                 | Excellent                          | P/N                                                                                       | Yes                             | 0.11    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.14    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 7                       |                             |                       |                                    |                                                                                           |                                 | 28.60   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 7                       | 7                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 8.11    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 7                       | 7                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.69    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 12.33   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 5                       | 5                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.40    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 19.40   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.47    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 80.86   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 22.57   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | < 100                                                               | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 7                       | 6                           | 85.7%                 | Unacceptable                       | N                                                                                         | No                              | 180.14  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 5                       | 5                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 5                       | 5                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.29   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 6                       | 6                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 7.15    |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 7                       | 7                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.33    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 7                       | 7                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 5                       | 5                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 5                       | 5                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |     |        |           |
|------------------------------|-----|-----|--------|-----------|
| Acute Health Chemical        | 35  | 35  | 100.0% | Excellent |
| Acute Health Microbiological | 155 | 155 | 100.0% | Excellent |
| Chronic Health               | 300 | 299 | 99.7%  | Excellent |
| Aesthetic                    | 374 | 374 | 100.0% | Excellent |
| Operational Efficiency       | 602 | 575 | 95.5%  | Excellent |



| Darling                                      |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 71                      | 71                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 12.18   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 71                      | 69                          | 97.2%                 | Excellent                          | P/R                                                                                       | Yes                             | 0.42    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 71                      | 71                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 71                      | 35                          | 49.3%                 | Unacceptable                       | P                                                                                         | No                              | 9.60    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 67                      | 67                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 21.97   |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 72                      | 71                          | 98.6%                 | Excellent                          | P                                                                                         | Yes                             | 0.03    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 73                      | 71                          | 97.3%                 | Excellent                          | N                                                                                         | Yes                             | 11.05   |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 71                      | 71                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.06    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 2                       |                             |                       |                                    |                                                                                           |                                 | 34.85   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 10.40   |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.30    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 13.25   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.50    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.65   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 80.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 122.50  |
|                                              |           | Aesthetic             | ≤ 300                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | < 100                                                               | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 184.50  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 11.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.41    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 2                       | 2                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.41    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 2                       | 2                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 2                       | 2                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |     |        |              |
|------------------------------|-----|-----|--------|--------------|
| Acute Health Chemical        | 10  | 10  | 100.0% | Excellent    |
| Acute Health Microbiological | 76  | 75  | 98.7%  | Excellent    |
| Chronic Health               | 117 | 117 | 100.0% | Excellent    |
| Aesthetic                    | 166 | 166 | 100.0% | Excellent    |
| Operational Efficiency       | 290 | 250 | 86.2%  | Unacceptable |



| Riebeek Kasteel                              |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 49                      | 49                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 11.28   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 49                      | 48                          | 98.0%                 | Excellent                          | P/R                                                                                       | Yes                             | 0.43    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 49                      | 49                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥ 5.0 - ≤ 9.7                                                       | 49                      | 41                          | 83.7%                 | Unacceptable                       | P                                                                                         | No                              | 9.10    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 44                      | 44                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 4.32    |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 49                      | 49                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 49                      | 48                          | 98.0%                 | Excellent                          | N                                                                                         | Yes                             | 1.45    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 48                      | 48                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.06    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 32.00   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 8.60    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.60    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 14.70   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.70    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.80   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 80.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 153.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.23    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |     |        |           |
|------------------------------|-----|-----|--------|-----------|
| Acute Health Chemical        | 5   | 5   | 100.0% | Excellent |
| Acute Health Microbiological | 51  | 51  | 100.0% | Excellent |
| Chronic Health               | 71  | 71  | 100.0% | Excellent |
| Aesthetic                    | 110 | 110 | 100.0% | Excellent |
| Operational Efficiency       | 195 | 185 | 94.9%  | Excellent |

| Riebeek Wes                                  |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 24                      | 24                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 11.57   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             | 0.35    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 24                      | 23                          | 95.8%                 | Excellent                          | P                                                                                         | Yes                             | 8.82    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 24                      | 24                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 2.88    |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 24                      | 24                          | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.08    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.06    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 30.90   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 8.10    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.60    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 13.80   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.60    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.80   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 76.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 161.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 11.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.32    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |    |        |           |
|------------------------------|-----|----|--------|-----------|
| Acute Health Chemical        | 5   | 5  | 100.0% | Excellent |
| Acute Health Microbiological | 26  | 26 | 100.0% | Excellent |
| Chronic Health               | 47  | 47 | 100.0% | Excellent |
| Aesthetic                    | 60  | 60 | 100.0% | Excellent |
| Operational Efficiency       | 100 | 99 | 99.0%  | Excellent |

| Yzerfontein                                  |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 47                      | 47                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 12.20   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 47                      | 46                          | 97.9%                 | Excellent                          | P/R                                                                                       | Yes                             | 0.41    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 47                      | 47                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 47                      | 21                          | 44.7%                 | Unacceptable                       | P                                                                                         | No                              | 9.71    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 42                      | 42                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 30.62   |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 49                      | 49                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 49                      | 49                          | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.80    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 47                      | 47                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.03    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 37.10   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 11.50   |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.10    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 13.10   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.50    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.60   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 88.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 214.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 14.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.41    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.28    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |     |        |              |
|------------------------------|-----|-----|--------|--------------|
| Acute Health Chemical        | 5   | 5   | 100.0% | Excellent    |
| Acute Health Microbiological | 51  | 51  | 100.0% | Excellent    |
| Chronic Health               | 70  | 70  | 100.0% | Excellent    |
| Aesthetic                    | 106 | 106 | 100.0% | Excellent    |
| Operational Efficiency       | 189 | 162 | 85.7%  | Unacceptable |

| Riverlands                                   |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 19                      | 19                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 12.18   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             | 0.38    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥ 5.0 - ≤ 9.7                                                       | 19                      | 19                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 8.84    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 19                      | 19                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 5.95    |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 19                      | 19                          | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.16    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.07    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 33.50   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 9.10    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.20    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 12.50   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.40    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.60   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.60    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 82.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 170.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 | #DIV/0! |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.32    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |    |    |        |           |
|------------------------------|----|----|--------|-----------|
| Acute Health Chemical        | 5  | 5  | 100.0% | Excellent |
| Acute Health Microbiological | 21 | 21 | 100.0% | Excellent |
| Chronic Health               | 42 | 42 | 100.0% | Excellent |
| Aesthetic                    | 50 | 50 | 100.0% | Excellent |
| Operational Efficiency       | 80 | 80 | 100.0% | Excellent |



| Abbotsdale                                   |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 24                      | 24                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 12.21   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             | 0.34    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥ 5.0 - ≤ 9.7                                                       | 24                      | 18                          | 75.0%                 | Unacceptable                       | P                                                                                         | No                              | 9.34    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 24                      | 24                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 2.58    |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 24                      | 24                          | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.50    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.06    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 31.80   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 8.60    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.40    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 12.80   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.40    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.60   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 82.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 153.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 16.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.42    |
| Phenols                                      | ug/L      | Aesthetic             | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.32    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |
| Acute Health Chemical                        |           |                       |                                                                     | 5                       | 5                           | 100.0%                | Excellent                          |                                                                                           |                                 |         |
| Acute Health Microbiological                 |           |                       |                                                                     | 26                      | 26                          | 100.0%                | Excellent                          |                                                                                           |                                 |         |
| Chronic Health                               |           |                       |                                                                     | 47                      | 47                          | 100.0%                | Excellent                          |                                                                                           |                                 |         |
| Aesthetic                                    |           |                       |                                                                     | 60                      | 60                          | 100.0%                | Excellent                          |                                                                                           |                                 |         |
| Operational Efficiency                       |           |                       |                                                                     | 100                     | 94                          | 94.0%                 | Excellent                          |                                                                                           |                                 |         |

| Chatsworth                                   |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 19                      | 19                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 12.15   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             | 0.36    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥ 5.0 - ≤ 9.7                                                       | 19                      | 19                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 8.84    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 19                      | 19                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 2.95    |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 19                      | 19                          | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 1.11    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 19                      | 19                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.06    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 32.70   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 8.90    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.20    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 12.60   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.40    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.60   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 80.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 48.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 195.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.36    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |    |    |        |           |
|------------------------------|----|----|--------|-----------|
| Acute Health Chemical        | 5  | 5  | 100.0% | Excellent |
| Acute Health Microbiological | 21 | 21 | 100.0% | Excellent |
| Chronic Health               | 42 | 42 | 100.0% | Excellent |
| Aesthetic                    | 50 | 50 | 100.0% | Excellent |
| Operational Efficiency       | 80 | 80 | 100.0% | Excellent |



| Kalbaskraal                                  |           |                       | SANS 241:2015                                                       | Compliance Calculations |                             |                       |                                    |                                                                                           |                                 |         |
|----------------------------------------------|-----------|-----------------------|---------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------|---------|
| Parameter                                    | Unit      | Risk                  | Standard Limits<br>(SANS 241-2011<br>and SANS 241-<br>2006 Class I) | Total Number of Samples | Number of Samples Complying | % Compliance Achieved | Performance (Population < 100 000) | Risk Character<br>P = prescribed monitoring<br>R = identified risk<br>N = negligible risk | Compliance Status<br>(Yes / No) | Average |
| Conductivity                                 | mS/m      | Aesthetic             | ≤ 170                                                               | 24                      | 24                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 11.75   |
| Turbidity                                    | NTU       | Operational           | ≤ 1                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             | 0.35    |
|                                              |           | Aesthetic             | ≤ 5                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/R                                                                                       | Yes                             |         |
| pH (at 25°C)                                 |           | Operational           | ≥5.0 - ≤ 9.7                                                        | 24                      | 22                          | 91.7%                 | Good                               | P                                                                                         | Yes                             | 9.31    |
| Heterotrophic Plate Count                    | cfu/ml    | Operational           | ≤ 1000                                                              | 24                      | 24                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 13.83   |
| E.Coli (<1 taken as 0)                       | cfu/100ml | Acute Health Micro    | ≤ 0                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P                                                                                         | Yes                             | 0.00    |
| Total Coliform Count (<1 taken as 0)         | cfu/100ml | Operational           | ≤ 10                                                                | 24                      | 23                          | 95.8%                 | Excellent                          | N                                                                                         | Yes                             | 2.42    |
| Free Chlorine                                | mg/L      | Chronic Health        | ≤ 5                                                                 | 24                      | 24                          | 100.0%                | Excellent                          | P/N                                                                                       | Yes                             | 0.09    |
| Colour                                       | mg/L      | Aesthetic             | ≤ 15                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 4.00    |
| Alkalinity (as CaCO <sub>3</sub> )           | mg/L      |                       | -                                                                   | 1                       |                             |                       |                                    |                                                                                           |                                 | 31.70   |
| Total Hardness (as CaCO <sub>3</sub> )       | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Calcium (as Ca)                              | mg/L      | Aesthetic / Operation | ≤ 150                                                               | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 8.60    |
| Magnesium (as Mg)                            | mg/L      | Aesthetic / Health    | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.20    |
| Sodium (as Na)                               | mg/L      | Aesthetic             | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 12.70   |
| Potassium (as K)                             | mg/L      | Operational / Health  | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 1.40    |
| Zinc (as Zn)                                 | mg/L      | Aesthetic             | ≤ 5                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.01    |
| Chloride (as Cl)                             | mg/L      | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 18.60   |
| Fluoride (as F)                              | mg/L      | Chronic Health        | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.50    |
| Sulphate (as SO <sub>4</sub> <sup>2-</sup> ) | mg/L      | Acute Health Chemical | ≤ 500                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 2.00    |
|                                              |           | Aesthetic             | ≤ 250                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             |         |
| Total Dissolved Solids                       | mg/L      | Aesthetic             | ≤ 1 200                                                             | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 78.00   |
| Ammonia Nitrogen (as N)                      | mg/L      | Aesthetic             | ≤ 1.5                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| Nitrate & Nitrite Nitrogen (as N)            | mg/L      | Acute Health Chemical | ≤ 12                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Iron (as Fe)                                 | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Manganese (as Mn)                            | ug/L      | Chronic Health        | ≤ 400                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
|                                              |           | Aesthetic             | < 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             |         |
| Aluminium (as Al)                            | ug/L      | Operational           | ≤300                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 185.00  |
| Cytopathogenic Viruses                       | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cryptosporidium Species                      | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Giardia Species                              | cfu/10 l  | Acute Health Micro    | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Chloroform                                   | ug/L      | Chronic Health        | ≤ 300                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromodichloromethane                         | ug/L      | Chronic Health        | ≤ 60                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Dibromochloromethane                         | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Bromoform                                    | ug/L      | Chronic Health        | ≤ 100                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Somatic Coliphages                           | cfu/10ml  | Operational           | ≤ 0                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.00    |
| Combined Trihalomethanes                     | mg/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Phenols                                      | ug/L      | Aesthetic             | ≤10                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Calcium Hardness (as CaCO <sub>3</sub> )     | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Magnesium Hardness (as CaCO <sub>3</sub> )   | mg/L      |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Nitrate as N                                 | mg/L      | Acute Health Chemical | ≤ 11                                                                | 1                       | 1                           | 100.0%                | Excellent                          | R                                                                                         | Yes                             | 0.20    |
| Nitrite as N                                 | mg/L      | Acute Health Chemical | ≤ 0.9                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.20    |
| Antimony (as Sb)                             | ug/L      | Chronic Health        | ≤ 20                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Arsenic (as As)                              | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Cadmium (as Cd)                              | ug/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 3.00    |
| Chromium (as Cr)                             | ug/L      | Chronic Health        | ≤ 50                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Cobalt (as Co)                               | ug/L      | Chronic Health        | ≤ 500                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Copper (as Cu)                               | ug/L      | Chronic Health        | ≤ 2000                                                              | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Lead (as Pb)                                 | ug/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Mercury (as Hg)                              | ug/L      | Chronic Health        | ≤ 6                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 5.00    |
| Nickel (as Ni)                               | ug/L      | Chronic Health        | ≤ 70                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Selenium (as Se)                             | ug/L      | Chronic Health        | ≤ 40                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 10.00   |
| Vanadium (as V)                              | ug/L      | Chronic Health        | ≤ 200                                                               | 0                       | 0                           |                       |                                    |                                                                                           |                                 |         |
| Cyanide                                      | ug/L      | Acute Health Chemical | ≤ 200                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Total Organic Carbon                         | mg/L      | Chronic Health        | ≤ 10                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.40    |
| Uranium (as U)                               | ug/L      | Chronic Health        | ≤ 30                                                                | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 15.00   |
| Barium (as Ba)                               | ug/L      | Chronic Health        | ≤ 700                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 20.00   |
| Boron (as B)                                 | mg/L      | Chronic Health        | ≤ 2.4                                                               | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.10    |
| CaCO <sub>3</sub> Precipitation Potential    |           |                       | -                                                                   | 0                       |                             |                       |                                    |                                                                                           |                                 |         |
| Microcystin (as LR)                          | ug/L      | Chronic Health        | ≤ 1                                                                 | 1                       | 1                           | 100.0%                | Excellent                          |                                                                                           | Yes                             | 0.15    |
| Monochloramine                               | mg/L      | Chronic Health        | ≤ 3                                                                 | 1                       | 1                           | 100.0%                | Excellent                          | N                                                                                         | Yes                             | 0.05    |

|                              |     |    |        |           |
|------------------------------|-----|----|--------|-----------|
| Acute Health Chemical        | 5   | 5  | 100.0% | Excellent |
| Acute Health Microbiological | 26  | 26 | 100.0% | Excellent |
| Chronic Health               | 47  | 47 | 100.0% | Excellent |
| Aesthetic                    | 60  | 60 | 100.0% | Excellent |
| Operational Efficiency       | 100 | 97 | 97.0%  | Excellent |

SWARTLAND MUNICIPALITY: COMPLIANCE SAMPLE RESULTS OF FINAL EFFLUENT FOR 2024-2025

| pH                           | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|------------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|-------------------------|--------------|-----------------------------------------|
|                              | Malmesbury     | 7.70   | 7.80   |        | 8.40   | 8.59   | 7.40   |        | 7.50   | 8.15   |        | 7.40   | 7.50   |        | 7.10   | 7.10   |        | 7.40   | 12            | 7                       | 58.3%        | 5.5 - 7.5 Licence Discharge             |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12            | 12                      | 100.0%       | 5.5 - 9.5 Licence Irrigation            |
|                              | Darling        | 8.40   | 7.70   |        | 7.92   | 7.80   | 7.80   |        | 7.70   | 7.40   |        | 7.70   | 7.40   |        | 7.90   | 7.80   |        | 7.70   | 12            | 12                      | 100.0%       | 5.5 - 9.5 General Limit                 |
|                              | Moorreesburg   | 7.30   | 7.20   |        | 7.40   | 7.70   | 7.80   |        | 7.70   | 7.20   |        | 6.70   | 7.10   |        | 6.90   | 7.10   |        | 6.70   | 12            | 12                      | 100.0%       | 5.5 - 9.5 General Limit                 |
|                              | Koringberg     | 7.14   | 7.11   |        | 7.00   | 7.29   | 7.08   |        | 7.50   | 7.03   |        | 6.73   | 6.58   |        | 6.96   | 6.99   |        | 7.07   | 12            | 12                      | 100.0%       | 5.5 - 9.5 General Limit                 |
|                              | Chatsworth     | 7.58   | 6.87   |        | 6.81   | 7.18   | 7.14   |        | 7.22   | 6.71   |        | 7.28   | 6.70   |        | 6.86   | 6.56   |        | 7.12   | 12            | 12                      | 100.0%       | 5.5 - 9.5 General Limit                 |
|                              | Kalbaskraal    | 6.99   | 6.76   |        | 6.81   | 7.08   | 6.75   |        | 6.70   | 6.82   |        | 7.40   | 7.14   |        | 6.92   | 6.88   |        | 6.48   | 12            | 12                      | 100.0%       | 6 - 9 for Irrigation up to 0.5 Ml/d     |
|                              | Riebeek Valley | 8.50   | 7.20   |        | 7.50   | 7.60   | 7.80   |        | 7.90   | 7.70   |        | 7.50   | 7.80   |        | 7.60   | 7.50   |        | 7.60   | 12            | 12                      | 100.0%       | 5.5 - 9.5 General Limit                 |
| COD - filtered (mg/ℓ)        | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|                              | Malmesbury     | 30.40  | 17.50  |        | 21.80  | 25.90  | 59.50  | 68.30  | 49.80  | 19.30  |        | 38.20  | 14.50  |        | 13.10  | 17.20  |        | 39.80  | 13            | 13                      | 100.0%       | 75 Licence Discharge                    |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 13            | 13                      | 100.0%       | 75 Licence Irrigation                   |
|                              | Darling        | 27.2   | 15.8   |        | 29.4   | 31.5   | 30.6   | 89.6   | 74.7   | 118.0  |        | 89.5   | 54.6   |        | 32.7   | 48.0   |        | 71.6   | 13            | 10                      | 76.9%        | 75 General Limit                        |
|                              | Moorreesburg   | 37.6   | 32.7   |        | 28.1   | 46.6   | 38.8   | 98.0   | 49.8   | 63.2   |        | 24.3   | 21.3   |        | 28.0   | 29.2   |        | 58.0   | 13            | 12                      | 92.3%        | 75 General Limit                        |
|                              | Koringberg     | 272.0  | 220.0  |        | 221.0  | 307.0  | 721.0  |        | 490.0  | 360.0  |        | 353.0  | 286.0  |        | 246.0  | 178.0  |        | 151.0  | 12            | 0                       | 0.0%         | 75 General Limit                        |
|                              | Chatsworth     | 118.0  | 143.0  |        | 68.0   | 116.0  | 102.0  |        | 103.0  | 155.0  |        | 79.9   | 120.0  |        | 93.9   | 117.0  |        | 73.5   | 12            | 2                       | 16.7%        | 75 General Limit                        |
|                              | Kalbaskraal    | 341.0  | 183.0  |        | 337.0  | 580.0  | 816.0  |        | 264.0  | 716.0  |        | 376.0  | 386.0  |        | 673.0  | 434.0  |        | 384.0  | 12            | 7                       | 58.3%        | 400 for Irrigation up to 0.5 Ml/d       |
|                              | Riebeek Valley | 30.4   | 86.6   |        | 50.6   | 177.0  | 67.8   | 109.0  | 108.0  | 35.7   |        | 41.7   | 66.7   |        | 74.3   | 38.8   |        | 71.6   | 13            | 9                       | 69.2%        | 75 General Limit                        |
| TSS (mg/ℓ)                   | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|                              | Malmesbury     | 14     | 10     |        | 4      | 4      | 4      |        | 6      | 5      |        | 4      | 4      |        | 8      | 11     |        | 5      | 12            | 10                      | 83.3%        | 10 Licence Discharge                    |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12            | 10                      | 83.3%        | 10 Licence Irrigation                   |
|                              | Darling        | 6      | 5      |        | 4      | 14     | 10     |        | 26     | 58     |        | 14     | 24     |        | 20     | 30     |        | 8      | 12            | 9                       | 75.0%        | 25 General Limit                        |
|                              | Moorreesburg   | 13     | 14     |        | 16     | 13     | 6      |        | 8      | 10     |        | 4      | 18     |        | 4      | 11     |        | 4      | 12            | 12                      | 100.0%       | 25 General Limit                        |
|                              | Koringberg     | 116    | 218    |        | 149    | 142    | 812    |        | 480    | 1024   |        | 360    | 308    |        | 139    | 106    |        | 82     | 12            | 0                       | 0.0%         | 25 General Limit                        |
|                              | Chatsworth     | 93     | 127    |        | 6      | 24     | 31     |        | 23     | 45     |        | 14     | 455    |        | 57     | 23     |        | 42     | 12            | 5                       | 41.7%        | 25 General Limit                        |
|                              | Kalbaskraal    | 321    | 132    |        | 122    | 593    | 428    |        | 134    | 365    |        | 93     | 580    |        | 196    | 133    |        | 268    | 12            | 0                       | 0.0%         | N/A for Irrigation up to 0.5 Ml/d       |
|                              | Riebeek Valley | 16     | 74     |        | 16     | 85     | 26     |        | 30     | 19     |        | 6      | 29     |        | 43     | 39     |        | 32     | 12            | 4                       | 33.3%        | 25 General Limit                        |
| Ammonia (mg/ℓ)               | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|                              | Malmesbury     | 0.12   | 0.10   |        | 0.10   | 1.80   | 0.10   |        | 0.96   | 0.11   |        | 0.32   | 0.10   |        | 2.00   | 0.19   |        | 0.42   | 12            | 12                      | 100.0%       | 6 Licence Discharge                     |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12            | 12                      | 100.0%       | 6 Licence Irrigation                    |
|                              | Darling        | 0.14   | 0.10   |        | 0.16   | 0.26   | 0.10   |        | 18.00  | 56.40  |        | 57.70  | 54.80  |        | 14.60  | 0.98   |        | 18.20  | 12            | 6                       | 50.0%        | 6 General Limit                         |
|                              | Moorreesburg   | 0.65   | 2.30   |        | 0.16   | 0.10   | 0.10   |        | 4.10   | 1.60   |        | 2.30   | 0.16   |        | 0.44   | 0.21   |        | 0.18   | 12            | 12                      | 100.0%       | 6 General Limit                         |
|                              | Koringberg     | 109.00 | 114.00 |        | 128.00 | 129.00 | 108.00 |        | 105.00 | 121.00 |        | 95.00  | 104.00 |        | 103.00 | 97.90  |        | 120.00 | 12            | 0                       | 0.0%         | 6 General Limit                         |
|                              | Chatsworth     | 85.90  | 65.10  |        | 57.50  | 70.90  | 84.70  |        | 97.00  | 59.50  |        | 41.50  | 47.30  |        | 74.20  | 52.40  |        | 92.30  | 12            | 0                       | 0.0%         | 6 General Limit                         |
|                              | Kalbaskraal    | 82.60  | 51.10  |        | 73.50  | 86.60  | 62.00  |        | 39.00  | 89.60  |        | 43.30  | 81.20  |        | 84.20  | 57.70  |        | 78.50  | 12            | 0                       | 0.0%         | N/A for Irrigation up to 0.5 Ml/d       |
|                              | Riebeek Valley | 1.80   | 20.80  |        | 27.40  | 74.00  | 67.00  |        | 74.80  | 15.80  |        | 9.50   | 31.90  |        | 46.40  | 7.60   |        | 17.60  | 12            | 1                       | 8.3%         | 6 General Limit                         |
| Faecal Coliforms (org/100mℓ) | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|                              | Malmesbury     | 0      | 0      |        | 0      | 0      | 1      | 110    | 10     | 0      |        | 0      | 36     |        | 0      | 0      | 0      | 2419   | 14            | 13                      | 92.9%        | 500 Licence for E.Coli                  |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 14            | 13                      | 92.9%        | 500 Licence for E.Coli                  |
|                              | Darling        | 0      | 5      |        | 2      | 0      | 23     | 437    | 33     | 2      |        | 2419   | 687    |        | 4      | 54     |        | 127    | 13            | 12                      | 92.3%        | 1 000 General Limit                     |
|                              | Moorreesburg   | 111    | 1986   | 25     | 461    | 0      | 69     | 691    | 0      | 1986   | 2419   | 6      | 2419   | 0      | 261    | 479    | 343    | 2      | 17            | 13                      | 76.5%        | 1 000 General Limit                     |
|                              | Koringberg     | 2419   | 2419   |        | 2419   | 2419   | 2419   |        | 2419   | 2419   |        | 2419   | 2419   |        | 2419   | 2419   |        | 2419   | 12            | 0                       | 0.0%         | 1 000 General Limit                     |
|                              | Chatsworth     | 2419   | 2419   |        | 2419   | 2419   | 2419   |        | 2419   | 1553   |        | 2419   | 205    |        | 2419   | 2419   |        | 2419   | 12            | 1                       | 8.3%         | 1 000 General Limit                     |
|                              | Kalbaskraal    | 2419   | 2419   |        | 2419   | 2419   | 2419   |        | 2419   | 2419   |        | 2419   | 2419   |        | 2419   | 2419   |        | 2419   | 12            | 12                      | 100.0%       | < 100 000 for Irrigation up to 0.5 Ml/d |
|                              | Riebeek Valley | 30     | 2      |        | 47     | 2419   | 2419   | 2419   | 2419   | 0      |        | 0      | 2419   |        | 0      | 2419   |        | 0      | 13            | 7                       | 53.8%        | 1 000 General Limit                     |
| Conductivity                 | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|                              | Malmesbury     | 83.1   | 106.0  |        | 108.0  | 126.0  | 115.0  |        | 121.0  | 109.0  |        | 108.0  | 112.0  |        | 113.0  | 116.0  |        | 117.0  | 12            | 12                      | 100.0%       | 75 mS/m above intake Licence Discharge  |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12            | 12                      | 100.0%       | 75 mS/m above intake Licence Irrigation |
|                              | Darling        | 91.8   | 85.7   |        | 105.0  | 115.0  | 107.0  |        | 121.0  | 147.0  |        | 147.0  | 153.0  |        | 124.0  | 10.8   |        | 242.0  | 12            | 10                      | 83.3%        | Max 150 General Limit                   |
|                              | Moorreesburg   | 104.0  | 160.0  |        | 166.0  | 190.0  | 136.0  |        | 121.0  | 118.0  |        | 110.0  | 113.0  |        | 99.1   | 111.0  |        | 110.0  | 12            | 9                       | 75.0%        | Max 150 General Limit                   |
|                              | Koringberg     | 215.0  | 239.0  |        | 253.0  | 266.0  | 300.0  |        | 290.0  | 263.0  |        | 240.0  | 217.0  |        | 206.0  | 230.0  |        | 224.0  | 12            | 0                       | 0.0%         | Max 150 General Limit                   |
|                              | Chatsworth     | 126.0  | 114.0  |        | 111.0  | 147.0  | 202.0  |        | 239.0  | 169.0  |        | 179.0  | 155.0  |        | 159.0  | 148.0  |        | 136.0  | 12            | 6                       | 50.0%        | Max 150 General Limit                   |
|                              | Kalbaskraal    | 126.0  | 109.0  |        | 137.0  | 153.0  | 194.0  |        | 164.0  | 229.0  |        | 230.0  | 189.0  |        | 161.0  | 176.0  |        | 140.0  | 12            | 10                      | 83.3%        | 200 for Irrigation up to 0.5 Ml/d       |
|                              | Riebeek Valley | 77.4   | 97.3   |        | 112.0  | 137.0  | 144.0  |        | 136.0  | 95.6   |        | 99.1   | 116.0  |        | 128.0  | 113.0  |        | 103.0  | 12            | 12                      | 100.0%       | Max 150 General Limit                   |
| Nitrate Nitrogen             | WWTW           | Jul-24 | Aug-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Nov-24 | Dec-24 | Jan-25 | Jan-25 | Feb-25 | Mar-25 | Mar-25 | Apr-25 | May-25 | Jun-25 | Jun-25 | No of Samples | No of Samples Complying | % Compliance | Requirement                             |
|                              | Malmesbury     | 4.40   | 3.20   |        | 4.40   | 14.00  | 7.00   |        | 7.60   | 7.90   |        | 3.20   | 7.90   |        | 12.00  | 6.80   |        | 7.90   | 12            | 10                      | 83.3%        | 10 Licence Discharge                    |
|                              |                |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 12            | 10                      | 83.3%        | 10 Licence Irrigation                   |
|                              | Darling        | 1.10   | 0.72   |        | 1.90   | 0.24   | 2.70   |        | 0.36   | 0.20   |        | 0.20   | 0.20   |        | 0.20   | 3.20   |        | 0.20   | 12            | 12                      | 100.0%       | 15 General Limit                        |
|                              | Moorreesburg   | 5.80   | 6.20   |        | 9.50   | 9.90   | 7.70   |        | 11.50  | 32.50  |        | 16.10  | 15.30  |        | 28.20  | 14.20  |        | 12.70  | 12            | 8                       | 66.7%        | 15 General Limit                        |
|                              | Koringberg     | 0.20   | 0.20   |        | 0.20   | 0.20   | 0.20   |        |        |        |        |        |        |        |        |        |        |        |               |                         |              |                                         |

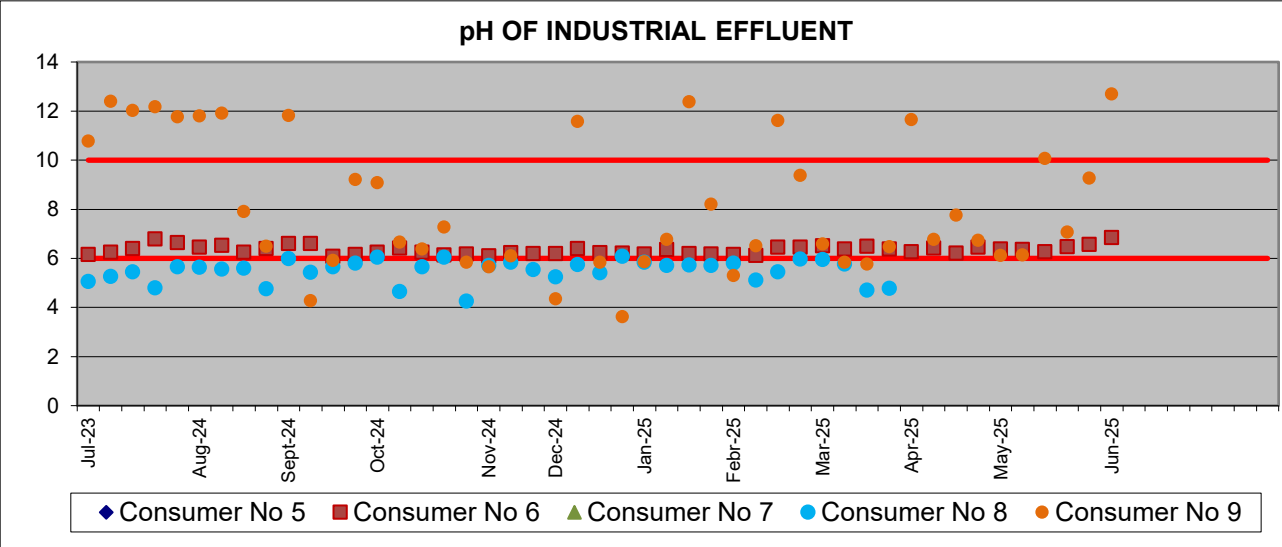
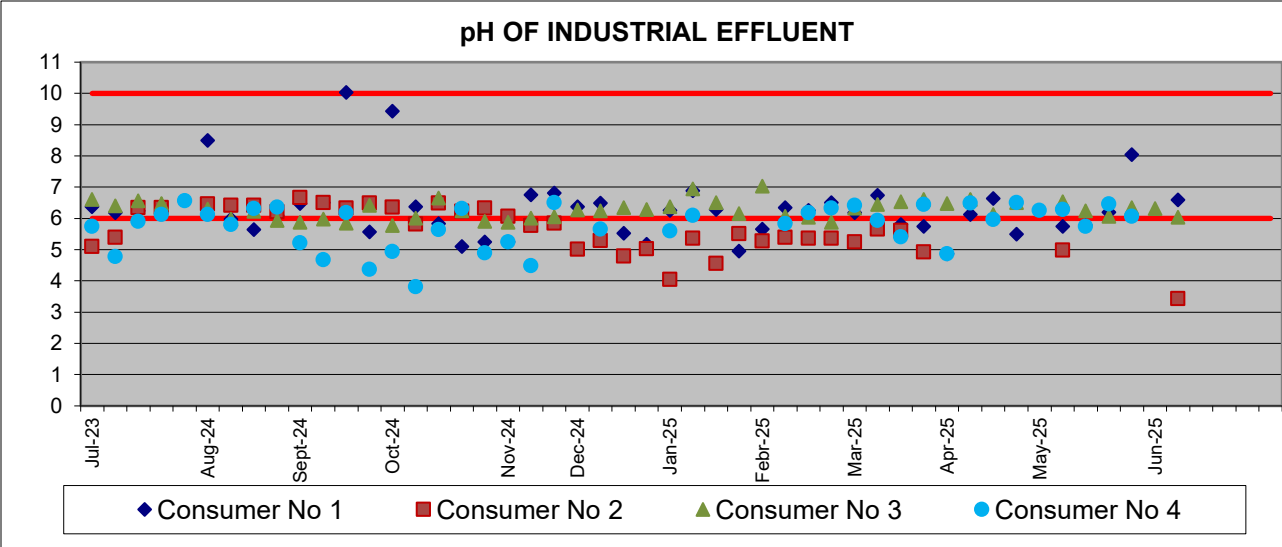
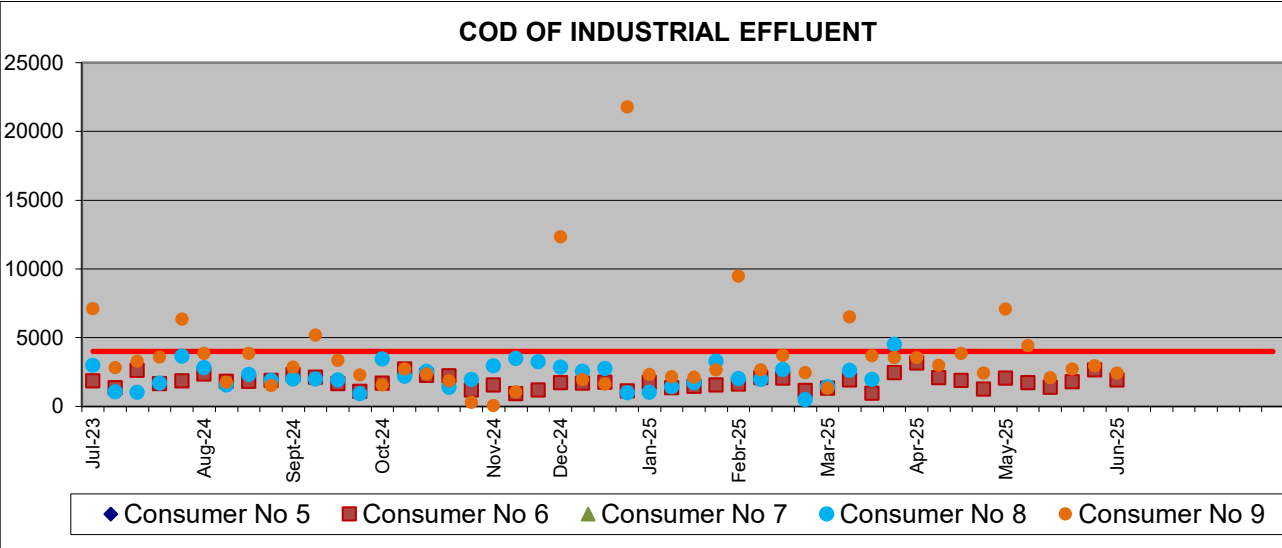
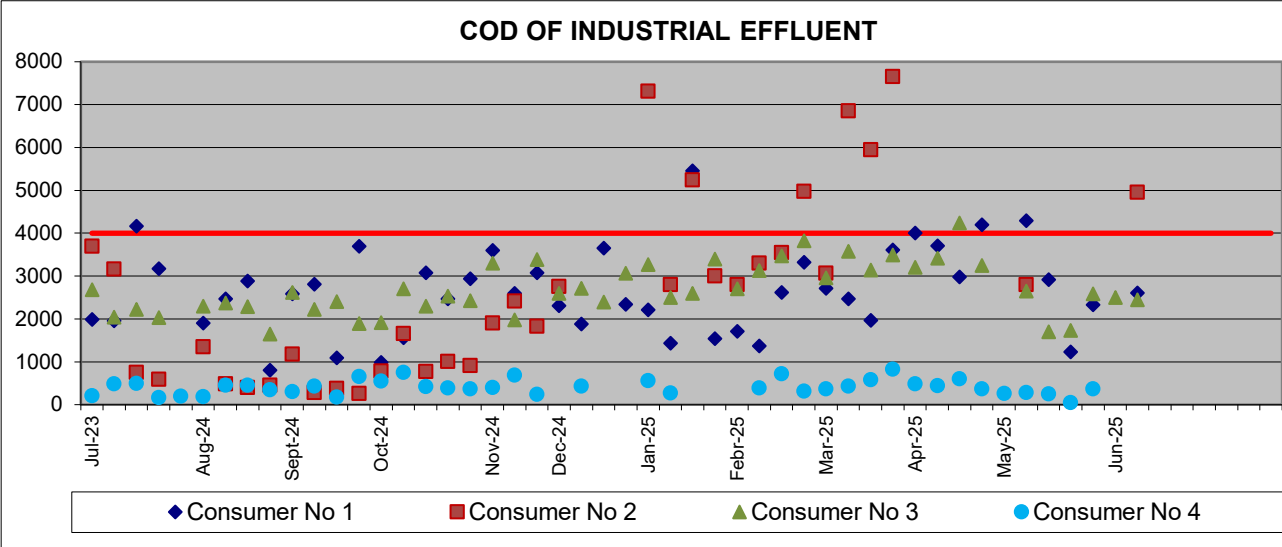


Effluent Samples taken at the various Industrial consumers and analysed at Swartland Municipality's Laboratory

| Date       | Consumer No 1 |        | Consumer No 2 |         | Consumer No 3 |        | Consumer No 4 |        |    |      |
|------------|---------------|--------|---------------|---------|---------------|--------|---------------|--------|----|------|
|            | Ph            | COD    | Ph            | COD     | Ph            | COD    | Ph            | COD    | Ph | COD  |
|            |               | mg/l   |               | mg/l    |               | mg/l   |               | mg/l   |    | mg/l |
| Jul-24     | 6.38          | 1984.0 | 5.10          | 3694.0  | 6.61          | 2677.0 | 5.75          | 209.0  |    |      |
|            | 6.18          | 1959.0 | 5.39          | 3159.0  | 6.40          | 2041.0 | 4.78          | 484.0  |    |      |
|            | 6.24          | 4162.0 | 6.34          | 752.0   | 6.56          | 2223.0 | 5.90          | 490.0  |    |      |
|            | 6.26          | 3177.0 | 6.34          | 585.0   | 6.48          | 2031.0 | 6.12          | 167.0  |    |      |
|            |               |        |               |         |               |        | 6.57          | 197.0  |    |      |
| Aug-24     | 8.49          | 1907.0 | 6.46          | 1350.0  | 6.30          | 2301.0 | 6.13          | 184.0  |    |      |
|            | 5.98          | 2470.0 | 6.42          | 482.0   | 5.98          | 2371.0 | 5.80          | 454.0  |    |      |
|            | 5.64          | 2884.0 | 6.42          | 393.0   | 6.23          | 2285.0 | 6.32          | 456.0  |    |      |
|            | 6.10          | 803.0  | 6.21          | 454.0   | 5.93          | 1643.0 | 6.36          | 340.0  |    |      |
| Sept-24    | 6.48          | 2588.0 | 6.66          | 1177.0  | 5.87          | 2614.0 | 5.21          | 298.0  |    |      |
|            | 6.50          | 2810.0 | 6.51          | 285.0   | 5.98          | 2220.0 | 4.68          | 435.0  |    |      |
|            | 10.03         | 1090.0 | 6.33          | 377.0   | 5.84          | 2401.0 | 6.19          | 174.0  |    |      |
|            | 5.57          | 3691.0 | 6.49          | 263.0   | 6.41          | 1897.0 | 4.37          | 654.0  |    |      |
| Oct-24     | 9.43          | 988.0  | 6.36          | 784.0   | 5.77          | 1908.0 | 4.94          | 552.0  |    |      |
|            | 6.37          | 1563.0 | 5.81          | 1654.0  | 6.01          | 2702.0 | 3.81          | 749.0  |    |      |
|            | 5.83          | 3079.0 | 6.49          | 770.0   | 6.65          | 2294.0 | 5.64          | 417.0  |    |      |
|            | 5.10          | 2472.0 | 6.23          | 1011.0  | 6.24          | 2537.0 | 6.31          | 386.0  |    |      |
|            | 5.24          | 2937.0 | 6.33          | 908.0   | 5.91          | 2429.0 | 4.89          | 364.0  |    |      |
| Nov-24     | 5.25          | 3601.0 | 6.07          | 1902.0  | 5.87          | 3304.0 | 5.24          | 400.0  |    |      |
|            | 6.75          | 2596.0 | 5.77          | 2412.0  | 6.01          | 1972.0 | 4.49          | 682.0  |    |      |
|            | 6.81          | 3075.0 | 5.85          | 1824.0  | 6.05          | 3382.0 | 6.51          | 239.0  |    |      |
|            | 6.37          | 2309.0 | 5.01          | 2751.0  | 6.27          | 2591.0 |               |        |    |      |
| Dec-24     | 6.49          | 1884.0 | 5.29          | 9050.0  | 6.24          | 2717.0 | 5.65          | 427.0  |    |      |
|            | 5.52          | 3653.0 | 4.79          | 9545.0  | 6.34          | 2389.0 |               |        |    |      |
|            | 5.18          | 2338.0 | 5.02          | 12859.0 | 6.29          | 3069.0 |               |        |    |      |
| Jan-25     | 6.26          | 2213.0 | 4.04          | 7316.0  | 6.38          | 3268.0 | 5.6           | 558.0  |    |      |
|            | 6.89          | 1436.0 | 5.36          | 2795.0  | 6.94          | 2501.0 | 6.1           | 272.0  |    |      |
|            | 6.29          | 5453.0 | 4.56          | 5241.0  | 6.5           | 2596.0 |               |        |    |      |
|            | 4.96          | 1538.0 | 5.51          | 3003.0  | 6.15          | 3392.0 |               |        |    |      |
|            | 5.65          | 1710.0 | 5.27          | 2799.0  | 7.03          | 2705.0 |               |        |    |      |
| Febr-25    | 6.34          | 1365.0 | 5.39          | 3299.0  | 6.06          | 3132.0 | 5.83          | 392.0  |    |      |
|            | 6.26          | 2620.0 | 5.36          | 3544.0  | 6.03          | 3472.0 | 6.19          | 721.0  |    |      |
|            | 6.5           | 3321.0 | 5.37          | 4979.0  | 5.87          | 3826.0 | 6.33          | 311.0  |    |      |
|            | 6.18          | 2710.0 | 5.24          | 3068.0  | 6.33          | 2958.0 | 6.42          | 367.0  |    |      |
| Mar-25     | 6.74          | 2470.0 | 5.65          | 6856.0  | 6.44          | 3576.0 | 5.93          | 426.0  |    |      |
|            | 5.8           | 1968.0 | 5.61          | 5948.0  | 6.53          | 3141.0 | 5.4           | 581.0  |    |      |
|            | 5.75          | 3610.0 | 4.93          | 7653.0  | 6.6           | 3497.0 | 6.44          | 826.0  |    |      |
|            | 4.86          | 4006.0 |               |         | 6.47          | 3206.0 | 4.87          | 487.0  |    |      |
| Apr-25     | 6.12          | 3702.0 |               |         | 6.61          | 3422.0 | 6.49          | 442.0  |    |      |
|            | 6.64          | 2982.0 |               |         | 6.13          | 4242.0 | 5.96          | 599.0  |    |      |
|            | 5.5           | 4195.0 |               |         | 6.51          | 3245.0 | 6.5           | 362.0  |    |      |
|            |               |        |               |         |               |        | 6.25          | 260.0  |    |      |
| May-25     | 5.74          | 4291.0 | 4.98          | 2803.0  | 6.53          | 2654.0 | 6.28          | 283.0  |    |      |
|            | 5.78          | 2917.0 |               |         | 6.24          | 1701.0 | 5.74          | 245.0  |    |      |
|            | 6.2           | 1231.0 |               |         | 6.07          | 1729.0 | 6.46          | 49.0   |    |      |
|            | 8.04          | 2333.0 |               |         | 6.35          | 2586.0 | 6.07          | 367.0  |    |      |
| Jun-25     |               |        |               |         | 6.31          | 2498.0 |               |        |    |      |
|            | 6.59          | 2610.0 | 3.43          | 4956.0  | 6.03          | 2446.0 |               |        |    |      |
| Compliance | 60.0%         | 88.9%  | 39.5%         | 73.7%   | 80.4%         | 97.8%  | 47.5%         | 100.0% |    |      |

**Effluent Samples taken at the various Industrial consumers and analysed at Swartland Municipality's Laboratory**

| Date       | Consumer No 5 |         | Consumer No 6 |        | Consumer No 7 |         | Consumer No 8 |       | Consumer No 9 |        |
|------------|---------------|---------|---------------|--------|---------------|---------|---------------|-------|---------------|--------|
|            | Ph            | COD     | Ph            | COD    | Ph            | COD     | Ph            | COD   | Ph            | COD    |
|            |               | mg/l    |               | mg/l   |               | mg/l    |               | mg/l  |               | mg/l   |
| Jul-23     |               |         | 6             | 1 844  |               |         | 5.06          | 2 984 | 10.79         | 7 097  |
|            |               |         | 6             | 1 365  |               |         | 5.26          | 1 044 | 12.41         | 2 795  |
|            |               |         | 6             | 2 612  |               |         | 5.45          | 1 020 | 12.02         | 3 265  |
|            |               |         | 6.8           | 1 651  |               |         | 4.80          | 1 667 | 12.18         | 3 592  |
|            |               |         | 6.65          | 1 854  |               |         | 5.65          | 3 642 | 11.76         | 6 341  |
| Aug-24     |               |         | 6.45          | 2 356  |               |         | 5.64          | 2 805 | 11.80         | 3 854  |
|            |               |         | 6.54          | 1 801  |               |         | 5.56          | 1 550 | 11.92         | 1 733  |
|            |               |         | 6.25          | 1 827  |               |         | 5.61          | 2 329 | 7.92          | 3 855  |
|            |               |         | 6.4           | 1 880  |               |         | 4.77          | 1 871 | 6.49          | 1 522  |
| Sept-24    |               |         | 6.61          | 2 324  |               |         | 6.00          | 1 990 | 11.83         | 2 847  |
|            |               |         | 6.61          | 2 105  |               |         | 5.44          | 1 979 | 4.28          | 5 158  |
|            |               |         | 6.09          | 1 642  |               |         | 5.66          | 1 912 | 5.91          | 3 328  |
|            |               |         | 6.17          | 1 088  |               |         | 5.80          | 925   | 9.22          | 2 280  |
| Oct-24     |               |         | 6.26          | 1 684  |               |         | 6.04          | 3 432 | 9.08          | 1 554  |
|            |               |         | 6.43          | 2 712  |               |         | 4.66          | 2 194 | 6.67          | 2 704  |
|            |               |         | 6.25          | 2 235  |               |         | 5.66          | 2 558 | 6.38          | 2 353  |
|            |               |         | 6.14          | 2 219  |               |         | 6.05          | 1 371 | 7.27          | 1 857  |
|            |               |         | 6.18          | 1 190  |               |         | 4.27          | 1 938 | 5.84          | 291    |
| Nov-24     |               |         | 6.11          | 1 547  |               |         | 5.72          | 2 946 | 5.66          | 59     |
|            |               |         | 6.24          | 932    |               |         | 5.85          | 3 488 | 6.1           | 1 061  |
|            |               |         | 6.2           | 1 178  |               |         | 5.54          | 3 232 |               |        |
| Dec-24     |               |         | 6.2           | 1 722  |               |         | 5.24          | 2 857 | 4.36          | 12 329 |
|            |               |         | 6.41          | 1 687  |               |         | 5.76          | 2 555 | 11.58         | 1 957  |
|            |               |         | 6.23          | 1 736  |               |         | 5.41          | 2 732 | 5.85          | 1 612  |
|            |               |         | 6.22          | 1 116  |               |         | 6.08          | 995   | 3.63          | 21 760 |
| Jan-25     |               |         | 6.18          | 1 751  |               |         | 5.84          | 1 024 | 5.87          | 2 312  |
|            |               |         | 6.36          | 1 347  |               |         | 5.72          | 1 420 | 6.78          | 2 163  |
|            |               |         | 6.19          | 1 453  |               |         | 5.73          | 1 725 | 12.38         | 2 125  |
|            |               |         | 6.18          | 1 559  |               |         | 5.72          | 3 273 | 8.21          | 2 637  |
| Febr-25    |               |         | 6.16          | 1 613  |               |         | 5.8           | 2 029 | 5.31          | 9 466  |
|            |               |         | 6.13          | 2 072  |               |         | 5.12          | 1 940 | 6.52          | 2 656  |
|            |               |         | 6.45          | 2 044  |               |         | 5.45          | 2 687 | 11.62         | 3 725  |
|            |               |         | 6.46          | 1 139  |               |         | 5.97          | 478   | 9.39          | 2 448  |
| Mar-25     |               |         | 6.51          | 1 307  |               |         | 5.95          | 1 414 | 6.59          | 1 307  |
|            |               |         | 6.38          | 1 912  |               |         | 5.77          | 2 618 | 5.85          | 6 499  |
|            |               |         | 6.50          | 953    |               |         | 4.7           | 1 963 | 5.77          | 3 663  |
|            |               |         | 6.38          | 2 431  |               |         | 4.78          | 4 497 | 6.48          | 3 532  |
| Apr-25     |               |         | 6.28          | 3 145  |               |         |               |       | 11.66         | 3 538  |
|            |               |         | 6.43          | 2 091  |               |         |               |       | 6.78          | 2 982  |
|            |               |         | 6.21          | 1 873  |               |         |               |       | 7.76          | 3 842  |
|            |               |         | 6.46          | 1 252  |               |         |               |       | 6.74          | 2 425  |
| May-25     |               |         | 6.39          | 2 055  |               |         |               |       | 6.12          | 7 071  |
|            |               |         | 6.37          | 1 721  |               |         |               |       | 6.14          | 4 396  |
|            |               |         | 6.28          | 1 372  |               |         |               |       | 10.07         | 2 096  |
|            |               |         | 6.48          | 1 771  |               |         |               |       | 7.07          | 2 723  |
|            |               |         | 6.58          | 2 647  |               |         |               |       | 9.28          | 2 952  |
| Jun-25     |               |         | 6.85          | 1 928  |               |         |               |       | 12.70         | 2 410  |
| Compliance | #DIV/0!       | #DIV/0! | 100.0%        | 100.0% | #DIV/0!       | #DIV/0! | 10.8%         | 97.3% | 45.7%         | 80.4%  |





## **ANNEXURE E**

**DWS's scorecard for assessing the potential for WC/WDM efforts**

## MUNICIPAL SCORECARD FOR ASSESSING THE POTENTIAL FOR WC/WDM EFFORTS IN MUNICIPALITIES: SWARTLAND

|                                                                                  |                                                                                                                                                 |   |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1. Development of Standard Water Balance                                         | WSA has developed reliable water balance and results indicate UAW/NRW at less than 20%                                                          | 4 |
|                                                                                  | WSA has developed reliable water balance and results indicate UAW/NRW at 20% to 40%                                                             | 3 |
|                                                                                  | WSA has developed reliable water balance and results indicate UAW/NRW at more than 40%                                                          | 2 |
|                                                                                  | WSA has no water balance. Is currently developing one                                                                                           | 1 |
|                                                                                  | WSA has no water balance                                                                                                                        | 0 |
| 2. Pressurised Supply to all consumers<br>100% of time                           | WSA maintains a pressurised supply to all areas within the water distribution network all of the time at a minimum of 20m pressure              | 4 |
|                                                                                  | WSA maintains a pressurised supply to all areas within the water distribution network however pressure drops below 10m in certain areas         | 3 |
|                                                                                  | Small isolated sections of the network experience intermittent supply                                                                           | 2 |
|                                                                                  | Many sections of the network experience intermittent supply                                                                                     | 1 |
|                                                                                  | The entire network experiences intermittent supply                                                                                              | 0 |
| 3. Residential Metering System                                                   | More than 98% of all connections are metered and billed.                                                                                        | 4 |
|                                                                                  | 75% to 98% of all connections are metered and billed                                                                                            | 3 |
|                                                                                  | 50 - 75% of connections are metered and billed                                                                                                  | 2 |
|                                                                                  | Less than 50% of connections are metered and billed                                                                                             | 1 |
|                                                                                  | No metering takes place                                                                                                                         | 0 |
| 4. Non Residential Metering System<br>(Commercial, Industrial and Institutional) | More than 98% of all non-residential connections, including fire supply connections, are metered and billed based on metered use                | 4 |
|                                                                                  | 75% to 98% of all non-residential connections, including fire supply connections, are metered and billed based on metered use                   | 3 |
|                                                                                  | 50 - 75% of non-residential connections, including fire supply connections, are metered and billed based on metered                             | 2 |
|                                                                                  | Less than 50% of non-residential connections, including fire supply connections, are metered and billed based on metered use                    | 1 |
|                                                                                  | No non—residential metering takes place                                                                                                         | 0 |
| 5. Effective Billing System including<br>Informative Billing                     | WSA produces informative billing to all customers based on meter readings                                                                       | 4 |
|                                                                                  | WSA produces informative billing to most customers based on meter readings                                                                      | 3 |
|                                                                                  | WSA produces informative billing to only some customers based on meter readings                                                                 | 2 |
|                                                                                  | WSA has an uninformative billing system in place                                                                                                | 1 |
|                                                                                  | WSA has no billing                                                                                                                              | 0 |
| 6. Network (Leakage) Complaints System                                           | Efficient reporting system in place (90% of reported leaks are repaired within 24 hours)                                                        | 4 |
|                                                                                  | Efficient reporting system in place (90% of reported leaks are repaired within 48 hours)                                                        | 3 |
|                                                                                  | Leakage reporting system in place response times need to be improved                                                                            | 2 |
|                                                                                  | Leakage reporting system in place but few if any field response teams to undertake repairs                                                      | 1 |
|                                                                                  | No leakage reporting system in place and no plans to create one                                                                                 | 0 |
| 7. Billing and Metering Complaints System                                        | Efficient reporting system for metering and billing problems in place (90% dealt with within 14 days)                                           | 4 |
|                                                                                  | Efficient reporting system for metering and billing problems in place (90% dealt with within one month)                                         | 3 |
|                                                                                  | Metering and billing problem reporting system in place response times need to be improved                                                       | 2 |
|                                                                                  | Metering and billing problem reporting system in place but very poor response time with many problems never resolved                            | 1 |
|                                                                                  | No Metering and billing problem reporting system in place                                                                                       | 0 |
| 8. Asset Register for Water Reticulation<br>System                               | WSA has a comprehensive and accurate asset register in place which is available digitally                                                       | 4 |
|                                                                                  | WSA has a partially completed accurate asset register in place                                                                                  | 3 |
|                                                                                  | WSA has a poor asset register in place                                                                                                          | 2 |
|                                                                                  | SA is in the process of developing an asset register                                                                                            | 1 |
|                                                                                  | WSA has no asset register in place and no immediate intention of generating an asset register                                                   | 0 |
| 9. Asset Management - Capital Works                                              | 2% or more of the value of the water network is invested annually into new capital works related to the existing                                | 4 |
|                                                                                  | 1% - 2% of the value of the water network is invested annually into new capital works related to the existing infrastructure                    | 3 |
|                                                                                  | Less than 1% of the value of the water network is invested annually into new capital works related to the existing infrastructure               | 2 |
|                                                                                  | No estimate of asset value of water supply system is available but WSA feels that sufficient budget is spent on new                             | 1 |
|                                                                                  | No estimate of asset value of water supply system is available and WSA feels that insufficient budget is spent on new Capital Works             | 0 |
| 10. Asset Management - Operations and<br>Maintenance                             | 2% or more of the value of the water network is invested annually into the maintenance of the existing infrastructure                           | 4 |
|                                                                                  | 1% - 2% of the value of the water network is invested annually into the maintenance of the existing infrastructure                              | 3 |
|                                                                                  | Less than 1% of the value of the water network is invested annually into the maintenance of the existing infrastructure                         | 2 |
|                                                                                  | No estimate of asset value of water supply system is available but WSA feels that sufficient budget is spent on operations and maintenance      | 1 |
|                                                                                  | No estimate of asset value of water supply system is available and WSA feels that insufficient budget is spent on operations and maintenance    | 0 |
| 11. Dedicated WDM support                                                        | Efficient WDM Section in place with sufficient resources                                                                                        | 4 |
|                                                                                  | WDM section in place requires some resources and capacity building                                                                              | 3 |
|                                                                                  | WDM section in place. Major resources and capacity building required                                                                            | 2 |
|                                                                                  | No WDM section currently in place, intention to create WDM section                                                                              | 1 |
|                                                                                  | No WDM Section and no intention to create WDM section                                                                                           | 0 |
| 12. Active Leakage Control                                                       | Active leakage detection and repair undertaken continuously with average sweep time of 12 months or less                                        | 4 |
|                                                                                  | Active leakage detection and repair undertaken continuously with average sweep time of 48 months                                                | 3 |
|                                                                                  | Active leakage detection and repair is undertaken on an add-hoc basis                                                                           | 2 |
|                                                                                  | No active leakage detection is currently undertaken however the WSA intends to initiate such measures                                           | 1 |
|                                                                                  | No active leakage detection is undertaken and the WSA has no intention to conduct such measures                                                 | 0 |
| 13. Effective Sectorisation                                                      | Reticulation network has been sectorised and is checked regularly to maintain discrete zones                                                    | 4 |
|                                                                                  | Reticulation network has been sectorised but is not checked regularly to ensure discrete zones                                                  | 3 |
|                                                                                  | Only portions of the reticulation network have been sectorised                                                                                  | 2 |
|                                                                                  | Few if any zones have been created but plans are in place to sectorise the system                                                               | 1 |
|                                                                                  | No sectorisation has been undertaken and no plans are in place to implement such measures                                                       | 0 |
| 14. Effective Bulk Meter Management                                              | All bulk water sources to the WSA are metered by the WSA using some form of check metering (either permanent or temporary)                      | 4 |
|                                                                                  | All bulk water sources to the WSA are metered by the Bulk water supplier or by the WSA                                                          | 3 |
|                                                                                  | Few bulk meters are operational                                                                                                                 | 2 |
|                                                                                  | No Bulk metering in place, however, WSA has plans to install bulk meters                                                                        | 1 |
|                                                                                  | No Bulk metering in place and no plans for such meters have been made                                                                           | 0 |
| 15. Effective Zone Meter Management and<br>Assessment of Minimum Night Flows     | All inlet points to discrete zones are metered and accurate with Minimum Night Flows logged and analysed on a regular basis                     | 4 |
|                                                                                  | All inlet points to discrete zones are metered and accurate but no Minimum Night Flow analyses are undertaken                                   | 3 |
|                                                                                  | All inlet points to discrete zones are metered but many are broken or considered to be inaccurate                                               | 2 |
|                                                                                  | Zone inputs are currently not metered although the WSA has planned to install meters on all zone inlets                                         | 1 |
|                                                                                  | No accurate zone metering is in place and there are no plans to introduce such measures                                                         | 0 |
| 16. Pressure Management and Maintenance<br>of Pressure Reducing Valves           | Reticulation is comprehensively sectorised into pressure zones which are all discrete. All PRV's are maintained under maintenance schedule      | 4 |
|                                                                                  | Reticulation is comprehensively sectorised into pressure zones which are all discrete. PRV's are only maintained when problems become apparent. | 3 |
|                                                                                  | Reticulation is sectorised in pressure zones but the zones are not verified and little or no maintenance is undertaken on the PRVs              | 2 |
|                                                                                  | WSA intends to introduce pressure zones and the use of PRVs to manage system pressures.                                                         | 1 |
|                                                                                  | No Discrete pressure zones and no PRV maintenance                                                                                               | 0 |

MUNICIPAL SCORECARD FOR ASSESSING THE POTENTIAL FOR WC/WDM EFFORTS IN MUNICIPALITIES: SWARTLAND

|                                                               |                                                                                                                                                                   |    |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 17. As-Built Drawings of Bulk and Reticulation Infrastructure | Accurate as-built drawings for all reticulation are available digitally                                                                                           | 4  |
|                                                               | As-built drawings available digitally for the majority of the network and available in hardcopy for the remainder of the network                                  | 3  |
|                                                               | A mixture of digital and hard copy as-built drawings available for the majority of the network but many problems are known to exist with the quality of the data. | 2  |
|                                                               | Only some hard copy as-built drawings are available for portions of the network                                                                                   | 1  |
|                                                               | No as-built drawings available                                                                                                                                    | 0  |
| 18. Schematic Layout of Water Infrastructure                  | An up-to date and detailed schematic of the whole bulk reticulation network is available showing all bulk mains, pumps, reservoirs, meters and control valves.    | 4  |
|                                                               | A detailed schematic of the bulk reticulation network is available but is known to be outdated and/or inaccurate.                                                 | 3  |
|                                                               | Only a rough schematic of the bulk reticulation network is available which is known to be inaccurate and/or outdated                                              | 2  |
|                                                               | No schematic of the bulk reticulation is available although the WSA is planning to develop such a schematic.                                                      | 1  |
|                                                               | No schematic of the bulk reticulation is available and the WSA has no plans to develop such a schematic.                                                          | 0  |
| 19. Regulations and Bylaws                                    | Regulations and Bylaws are in place which address WDM issues and some form of enforcement is undertaken                                                           | 4  |
|                                                               | Regulations and Bylaws are in place which address WDM issues but are not enforced                                                                                 | 3  |
|                                                               | Regulations and Bylaws are in place but do not address WDM issues                                                                                                 | 2  |
|                                                               | There are no Bylaws in place but WSA is intending to introduce such measures                                                                                      | 1  |
|                                                               | There are no Bylaws in place and WSA has no plans to introduce them                                                                                               | 0  |
| 20. Tariffs                                                   | WSA has rising block tariffs in place that encourage water use efficiency                                                                                         | 4  |
|                                                               | WSA has rising block tariffs in place but they do not encourage water use efficiency sufficiently                                                                 | 3  |
|                                                               | WSA has single water tariff in place                                                                                                                              | 2  |
|                                                               | WSA has a declining block tariff in place                                                                                                                         | 1  |
|                                                               | WSA does not know what tariff structure is in place                                                                                                               | 0  |
| 21. Technical Support to Customers                            | The WSA actively engages with customers and offers technical support on WDM to both domestic as well as commercial/industrial customers                           | 4  |
|                                                               | The WSA offers technical support on WDM to large consumers on a pro-active basis                                                                                  | 3  |
|                                                               | The WSA only offers technical support on WDM on a reactive basis                                                                                                  | 2  |
|                                                               | The WSA currently offers no technical support but plans to introduce a support mechanism                                                                          | 1  |
|                                                               | The WSA has no plans to offer technical support on WDM measures to any customers                                                                                  | 0  |
| 22. Removal of Unlawful Connections                           | The WSA actively monitors and removes all unlawful connections                                                                                                    | 4  |
|                                                               | The WSA selectively monitors and removes unlawful connections                                                                                                     | 3  |
|                                                               | The WSA monitors unlawful connections but has no policy for removal                                                                                               | 2  |
|                                                               | The WSA plans to introduce measures to tackle unlawful connections                                                                                                | 1  |
|                                                               | The WSA has no plans to deal with illegal connections                                                                                                             | 0  |
| 23. Community Awareness and Education Programmes              | WSA is actively involved in conducting workshops on water conservation within the communities with a dedicated team                                               | 4  |
|                                                               | WSA is involved in conducting workshops on water conservation within the communities however no dedicated team exists                                             | 3  |
|                                                               | WSA has very little involvement with workshops on water conservation within the communities                                                                       | 2  |
|                                                               | WSA currently does not conduct workshops on water conservation within the communities, however these interventions are proposed                                   | 1  |
|                                                               | WSA currently does not conduct workshops on water conservation within the communities                                                                             | 0  |
| 24. Schools Awareness and Education Programmes                | WSA is actively involved in conducting workshops on water conservation within the schools with a dedicated team                                                   | 4  |
|                                                               | WSA is involved in conducting workshops on water conservation within the schools however no dedicated team exists                                                 | 3  |
|                                                               | WSA has very little involvement with workshops on water conservation within the schools                                                                           | 2  |
|                                                               | WSA currently does not conduct workshops on water conservation within the schools, however these interventions are proposed                                       | 1  |
|                                                               | WSA currently does not conduct workshops on water conservation within the schools                                                                                 | 0  |
| 25. Retrofitting                                              | WSA has undertaken detailed plumbing repairs in public buildings and inside properties of indigent users.                                                         | 4  |
|                                                               | WSA has undertaken limited plumbing repairs in public buildings and inside properties of indigent users.                                                          | 3  |
|                                                               | WSA has undertaken limited plumbing repairs in public buildings, but not inside properties of indigent users.                                                     | 2  |
|                                                               | WSA has not undertaken internal plumbing repair in public buildings or inside properties of indigent users.                                                       | 1  |
|                                                               |                                                                                                                                                                   | 0  |
| TOTAL                                                         |                                                                                                                                                                   | 83 |

## **ANNEXURE F**

### **Water and Sanitation Operational and Maintenance Budget**







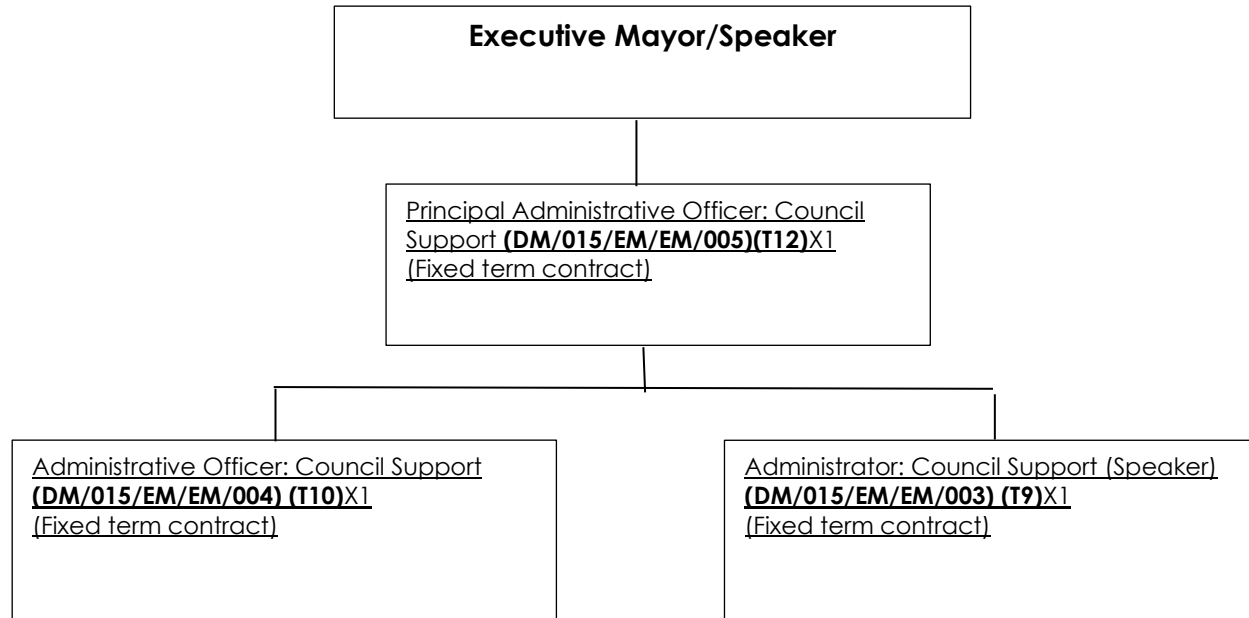
| Expenditure for Sanitation Services |                                    |        |               |               |               |               |               |               |               |               |               |               |               |               |               |                |                |                |                |
|-------------------------------------|------------------------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|
| Category                            | Item                               | Vote   | Actual 09/10  | Actual 10/11  | Actual 11/12  | Actual 12/13  | Actual 13/14  | Actual 14/15  | Actual 15/16  | Actual 16/17  | Actual 17/18  | Actual 18/19  | Actual 19/20  | Actual 20/21  | Actual 21/22  | Actual 22/23   | Actual 23/24   | Actual 24/25   | Budget 24/25   |
| Salaries and Wages                  | Allowances: Acting                 | 597602 | R1 434.55     | R30 362.87    | R74 803.32    | R76 294.13    | R17 890.74    | R49 610.35    | R19 456.91    | R14 824.77    | R20 518.15    | R36 433.46    | R35 705.42    | R45 553.17    | R117 629.34   | R141 434.55    | R16 620.29     | R103 956.07    | R105 407.00    |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Allowances: Essential Scheme       | 597602 | R156 560.36   | R111 778.38   | R123 798.16   | R126 856.33   | R282 456.33   | R292 792.94   | R101 212.97   | R102 812.92   | R115 692.37   | R118 154.52   | R129 991.68   | R134 403.49   | R147 668.95   | R160 174.97    | R169 834.85    | R189 220.00    | R189 220.00    |
|                                     | Allowances: Standby                | 597602 | R306 708.11   | R379 598.15   | R399 048.32   | R512 863.33   | R557 554.72   | R571 906.22   | R590 842.93   | R590 696.56   | R593 315.00   | R610 150.74   | R739 067.94   | R784 862.19   | R849 862.19   | R912 738.07    | R905 323.24    | R909 479.00    | R909 479.00    |
|                                     | Allowances: Cellphone              | 597602 | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R10 685.00    | R10 740.00    | R9 740.00     | R14 365.00    | R11 400.00    | R11 400.00    | R11 400.00    | R11 864.19    | R12 600.00     | R12 600.00     | R12 600.00     | R12 600.00     |
|                                     | Bonuses: 13th Cheque               | 597602 | R157 687.47   | R176 280.90   | R157 565.09   | R207 354.87   | R183 166.10   | R215 301.56   | R279 992.28   | R325 908.83   | R353 124.00   | R249 989.25   | R345 711.39   | R399 644.16   | R461 410.37   | R470 076.55    | R622 092.60    | R503 893.33    | R575 690.00    |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Contract Workers: Projects         | 597602 | R58 259.34    | R70 881.40    | R108 949.06   | R15 372.60    | R26 100.00    | R84 480.00    | R51 800.43    | R120 715.73   | R246 960.92   | R249 230.00   | R17 057.00    | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Contract Workers: EPWP             | 597602 | R0.00         | R0.00         | R0.00         | R0.00         | R48 032.00    | R59 100.00    | R52 440.00    | R16 680.00    | R35 280.00    | R0.00         | R0.00         | R0.00         | R0.00         | R54 120.00     | R84 080.00     | R194 938.32    | R4 936 327.00  |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R181 538.16   | R116 587.00   | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R2 254 304.93  | R134 826.00    |
| Social Contributions                | Contribution: Leave Gratuity       | 597602 | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Contribution: Long Service Bonuses | 597602 | R10 968.26    | R50 616.68    | R48 802.91    | R26 837.00    | R0.00         | R8 678.82     | R40 737.12    | R5 763.28     | R74 449.75    | R0.00         | R34 300.39    | R0.00         | R0.00         | R119 347.11    | R67 923.00     | R76 256.81     | R130 917.50    |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Post Employee Health Benefits      | 597602 | R94 540.73    | R103 942.56   | R186 120.99   | R196 336.00   | R188 176.68   | R209 511.98   | R417 476.07   | R101 866.03   | R91 460.45    | R0.00         | R14 069.38    | R0.00         | R0.00         | R378 294.00    | R159 324.00    | R209 556.00    | R270 623.00    |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Housing Subsidy                    | 597602 | R19 356.00    | R16 095.00    | R8 305.00     | R18 183.00    | R19 278.00    | R18 095.00    | R25 200.00    | R26 712.00    | R57 334.74    | R46 360.96    | R52 905.77    | R62 468.91    | R46 296.48    | R24 282.48     | R37 324.34     | R40 118.40     | R40 387.00     |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Overtime Emergency Services        | 597602 | R578 276.80   | R441 981.81   | R313 122.47   | R368 731.44   | R438 338.93   | R450 612.92   | R456 947.16   | R438 909.61   | R492 799.16   | R514 528.69   | R570 391.89   | R604 311.19   | R713 842.40   | R740 723.21    | R898 971.82    | R901 794.49    | R815 093.00    |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R46 145.16    | R11 556.66    | R4 420.03     | R1 883.40     | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Overtime Special Projects          | 597602 | R209.59       | R198 695.33   | R365 948.11   | R406 427.18   | R388 247.66   | R468 827.83   | R589 760.40   | R589 259.22   | R238 106.43   | R274 823.43   | R341 288.47   | R472 271.30   | R1 273 361.96 | R862 327.33    | R1 008 375.73  | R824 357.23    | R504 317.00    |
| 597602                              | R0.00                              | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          |                |
| Salaries                            | Salaries                           | 597602 | R1 903 204.33 | R1 934 352.96 | R1 910 389.46 | R2 172 943.46 | R2 415 272.95 | R2 507 509.47 | R3 557 517.71 | R4 368 253.26 | R5 721 756.06 | R2 762 674.54 | R3 276 130.20 | R3 619 412.80 | R5 478 593.76 | R4 042 850.73  | R4 526 806.88  | R0.00          | R0.00          |
|                                     | 597602                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Provision: TASK Back Payment       | 597602 | R65 195.50    | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Contract Workers: Temporary staff  | 597602 | R10 090.96    | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Sub-Total                          |        | R3 352 682.04 | R3 124 577.00 | R3 674 652.85 | R4 269 656.81 | R4 429 644.01 | R4 740 455.99 | R6 157 663.96 | R6 138 713.19 | R6 754 760.44 | R6 082 206.83 | R7 934 417.62 | R9 189 332.32 | R9 684 345.15 | R10 948 000.00 | R11 444 139.34 | R12 468 063.96 | R11 663 781.00 |
|                                     | Group Insurance                    | 597606 | R30 634.94    | R32 426.52    | R32 141.58    | R29 296.63    | R31 235.15    | R32 683.48    | R45 241.72    | R50 886.02    | R56 810.00    | R41 579.40    | R47 096.95    | R50 922.60    | R99 758.14    | R88 270.32     | R99 975.39     | R105 127.91    | R111 971.00    |
|                                     | 597606                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Insurance Unemployment             | 597606 | R25 484.02    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22    | R25 352.22     | R25 352.22     | R25 352.22     | R25 352.22     |
|                                     | 597606                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Medical Aid                        | 597606 | R147 112.62   | R155 842.50   | R136 040.52   | R146 991.60   | R162 686.40   | R160 941.48   | R269 737.80   | R319 724.04   | R347 242.15   | R200 662.69   | R186 405.30   | R203 894.52   | R406 461.84   | R256 911.60    | R281 544.24    | R249 849.84    | R312 943.00    |
| 597606                              | R0.00                              | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          |                |
| Social Contributions                | Pension Fund                       | 597606 | R169 588.98   | R179 280.97   | R198 256.68   | R241 621.38   | R289 303.02   | R301 601.16   | R461 958.48   | R523 899.74   | R580 777.02   | R532 456.74   | R586 597.12   | R647 747.64   | R606 481.58   | R739 589.04    | R817 534.22    | R829 292.22    | R860 544.00    |
|                                     | 597606                             | R0.00  | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Provision: Fund                    | 597606 | R129 758.76   | R131 805.66   | R110 312.40   | R108 375.54   | R96 811.02    | R102 304.80   | R117 149.76   | R127 189.44   | R128 165.40   | R0.00         | R0.00         | R0.00         | R0.00         | R0.00          | R0.00          | R0.00          | R0.00          |
|                                     | Provision: Compensation            | 597606 | R0.00         | R0.00         | R0.00         | R0.00         |               |               |               |               |               |               |               |               |               |                |                |                |                |



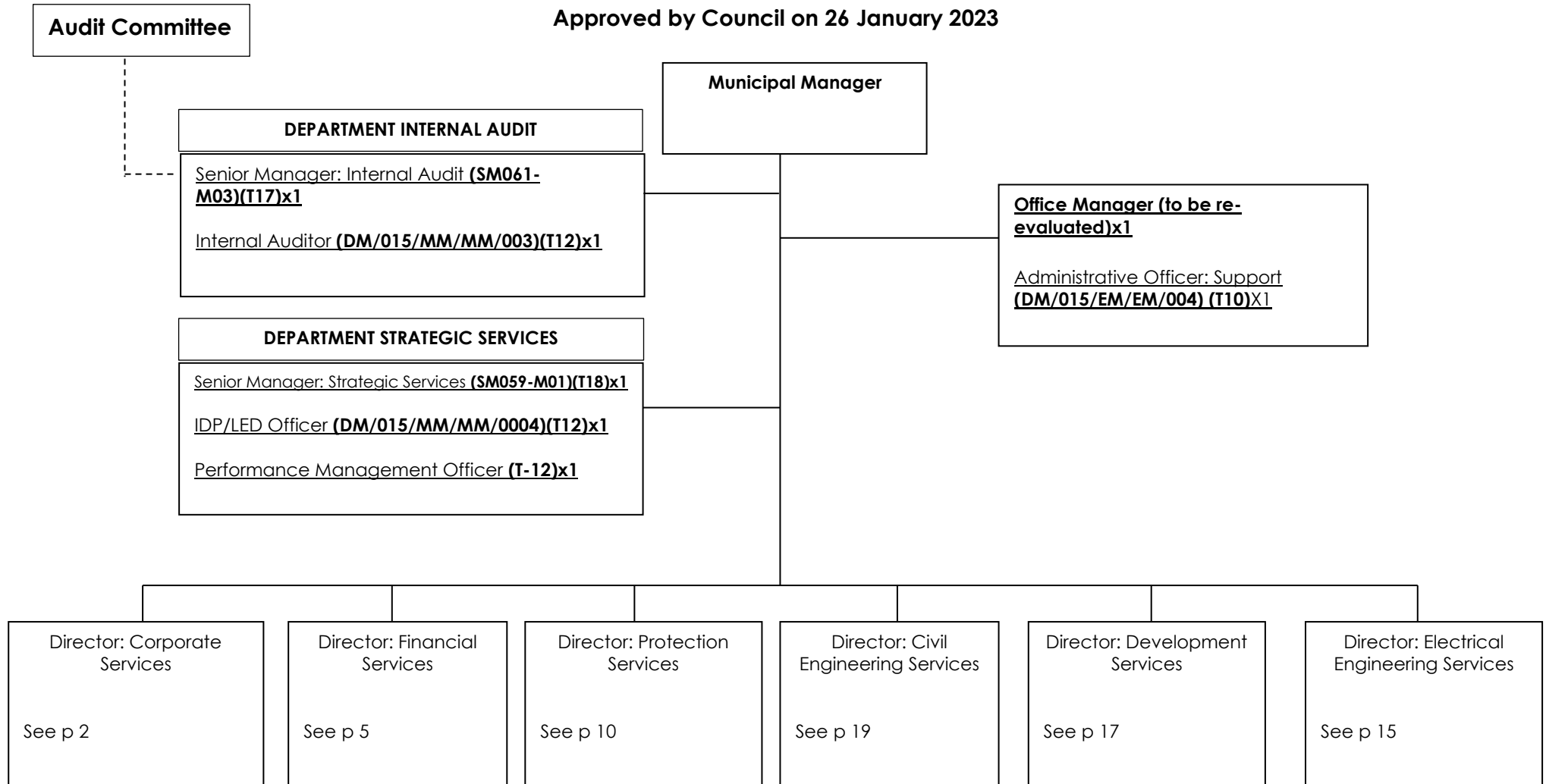
## **ANNEXURE G**

### **Swartland Municipality's Approved Organogram**

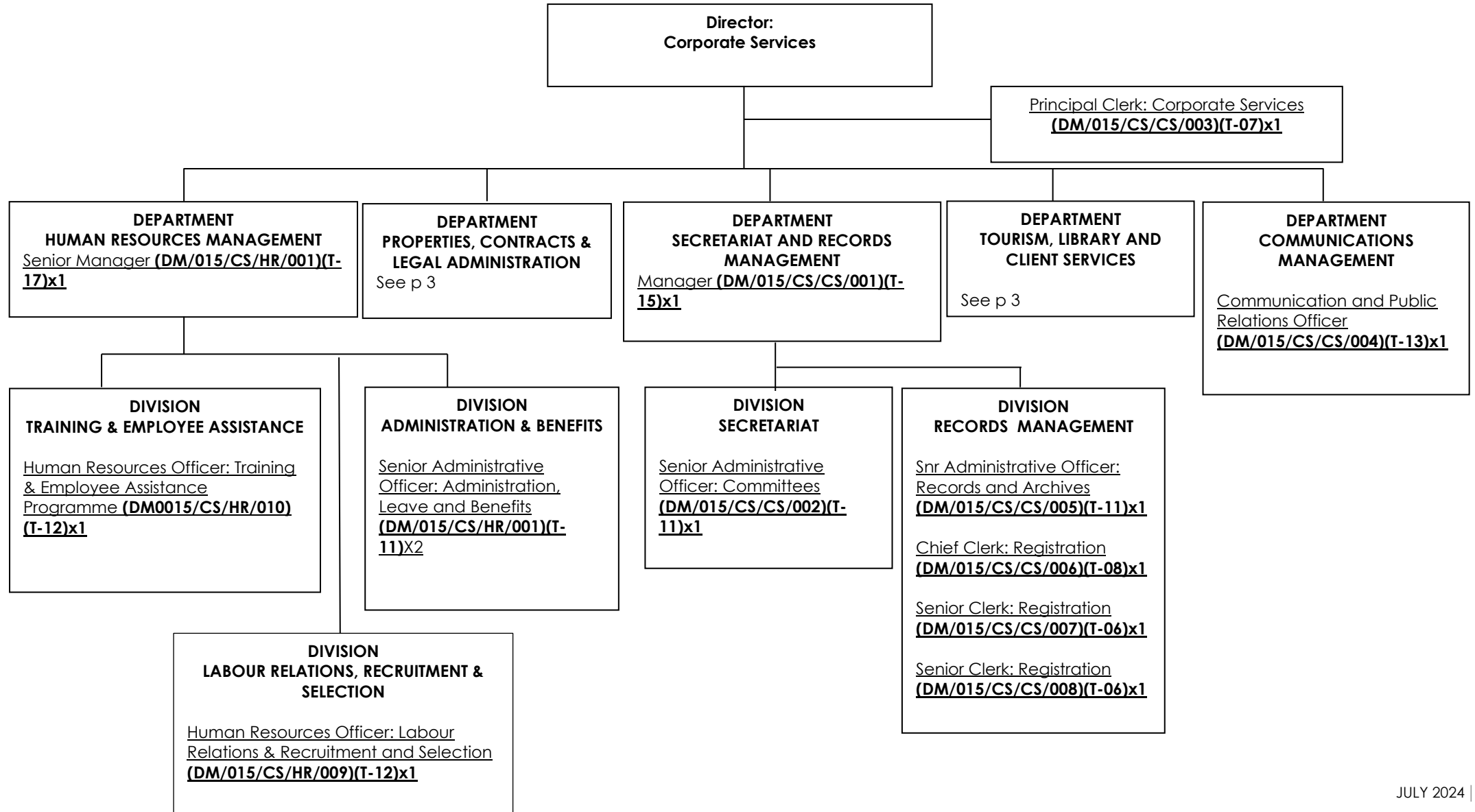
**SWARTLAND MUNICIPALITY  
APPROVED ORGANISATIONAL STRUCTURE  
OFFICE OF THE POLITICAL OFFICE BEARERS  
Approved by Council on 28 March 2024**



**SWARTLAND MUNICIPALITY**  
**APPROVED ORGANISATIONAL STRUCTURE**  
**OFFICE OF THE MUNICIPAL MANAGER**  
 Approved by Council on 26 January 2023

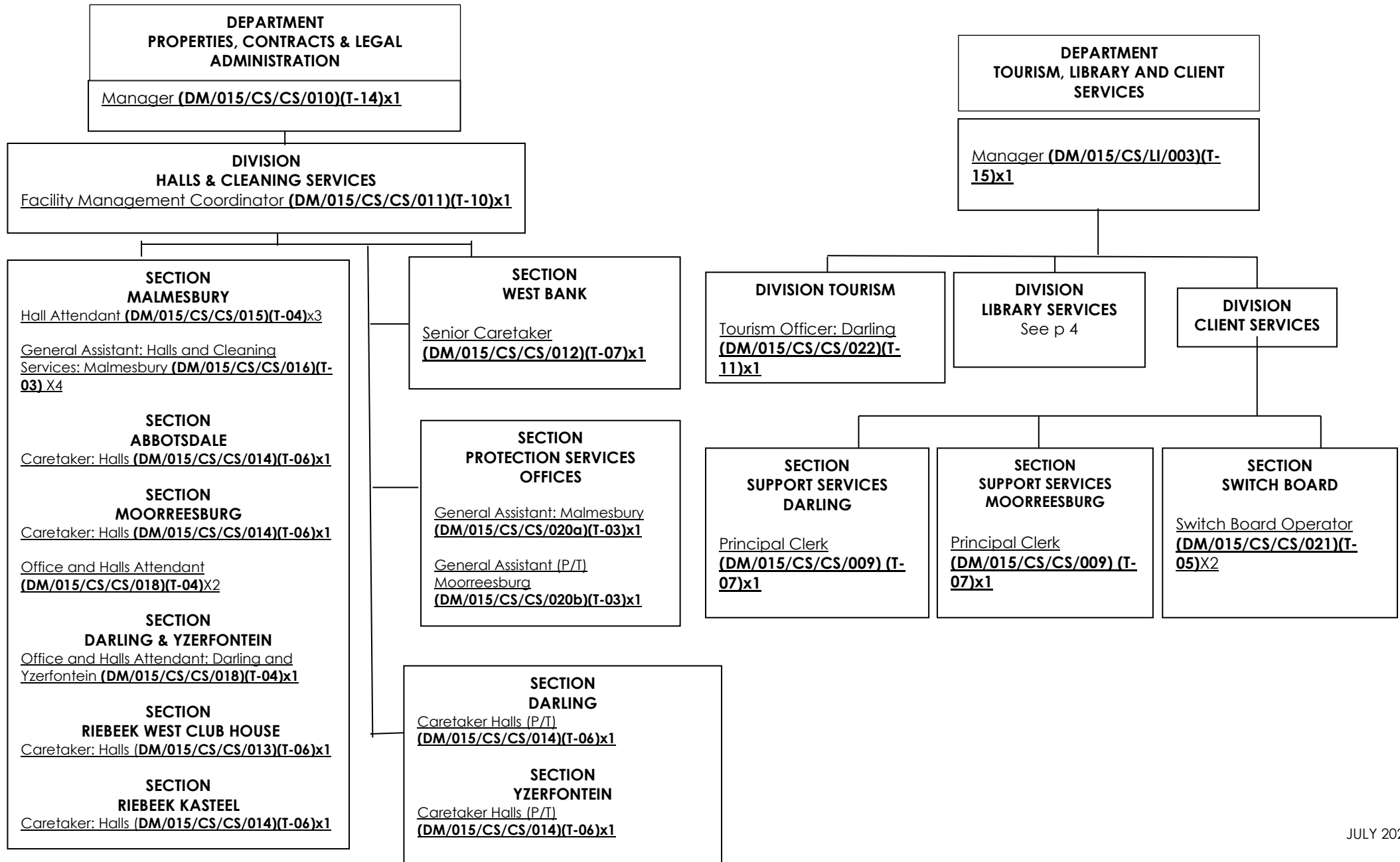


**SWARTLAND MUNICIPALITY**  
**APPROVED ORGANISATIONAL STRUCTURE**  
**DIRECTORATE CORPORATE SERVICES**  
 Approved by Council on 26 January 2023

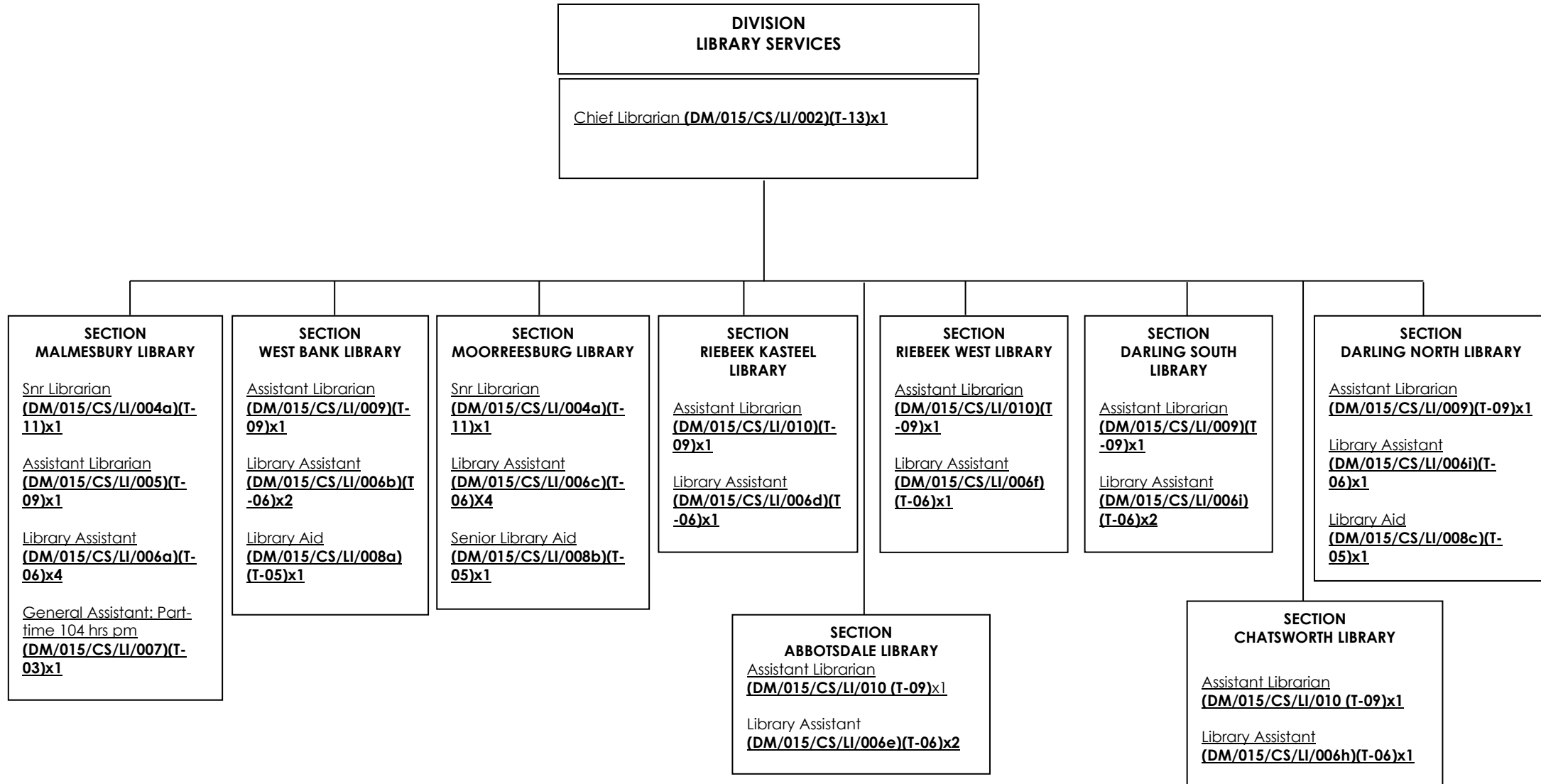




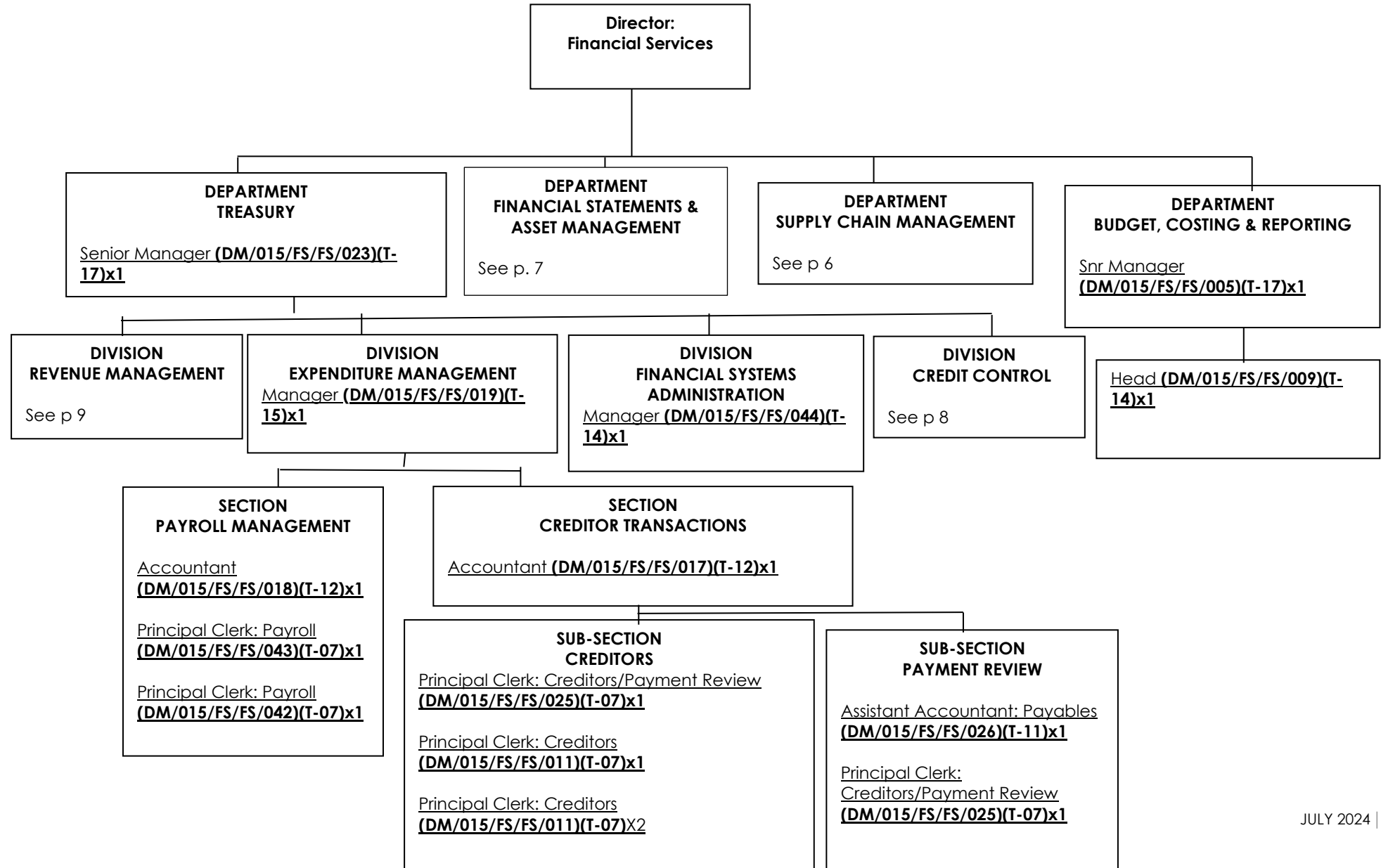
## DIRECTORATE CORPORATE SERVICES



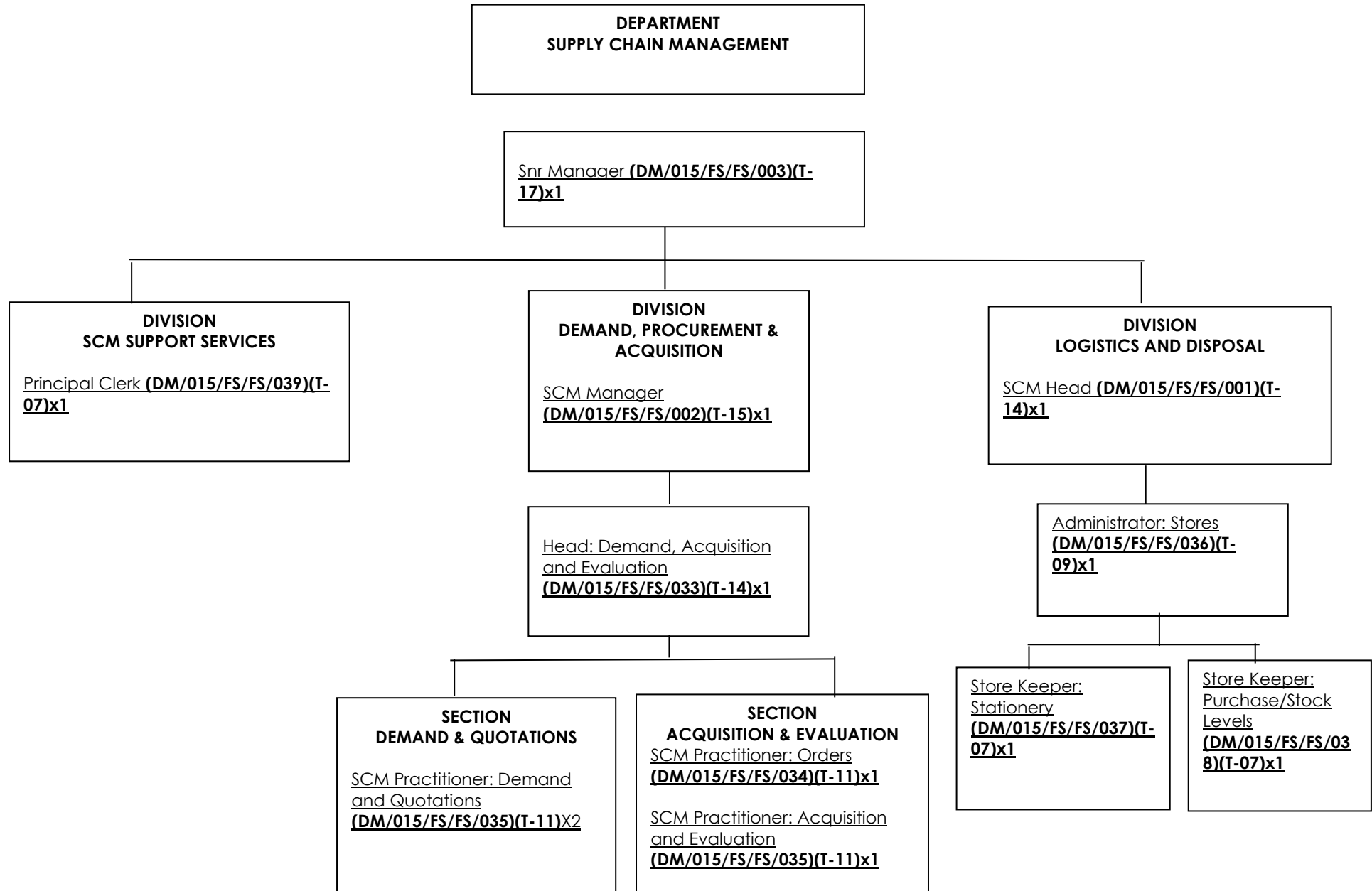
## DIRECTORATE CORPORATE SERVICES

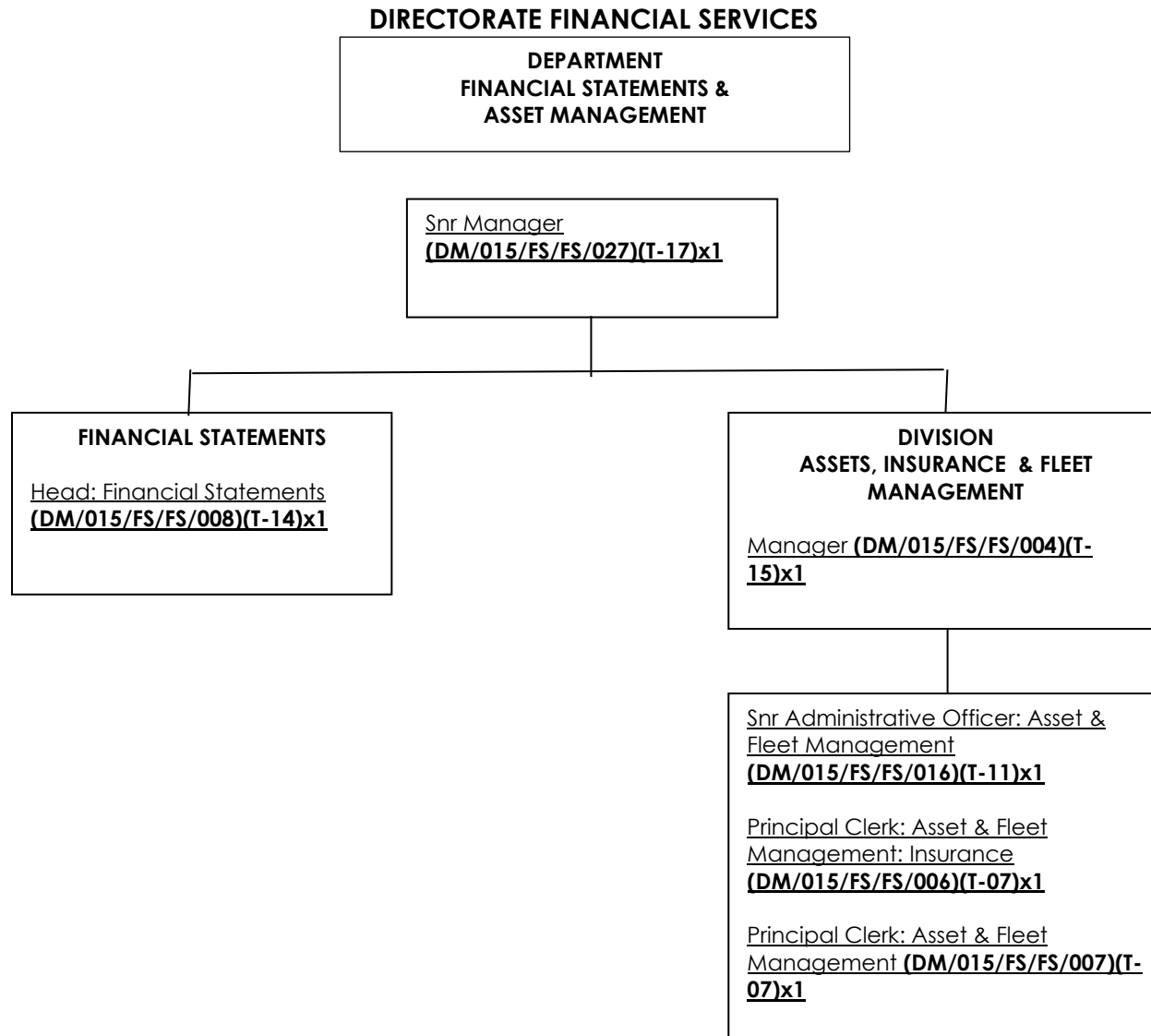


**SWARTLAND MUNICIPALITY  
APPROVED ORGANISATIONAL STRUCTURE  
DIRECTORATE FINANCIAL SERVICES  
Approved by Council on 26 January 2023**

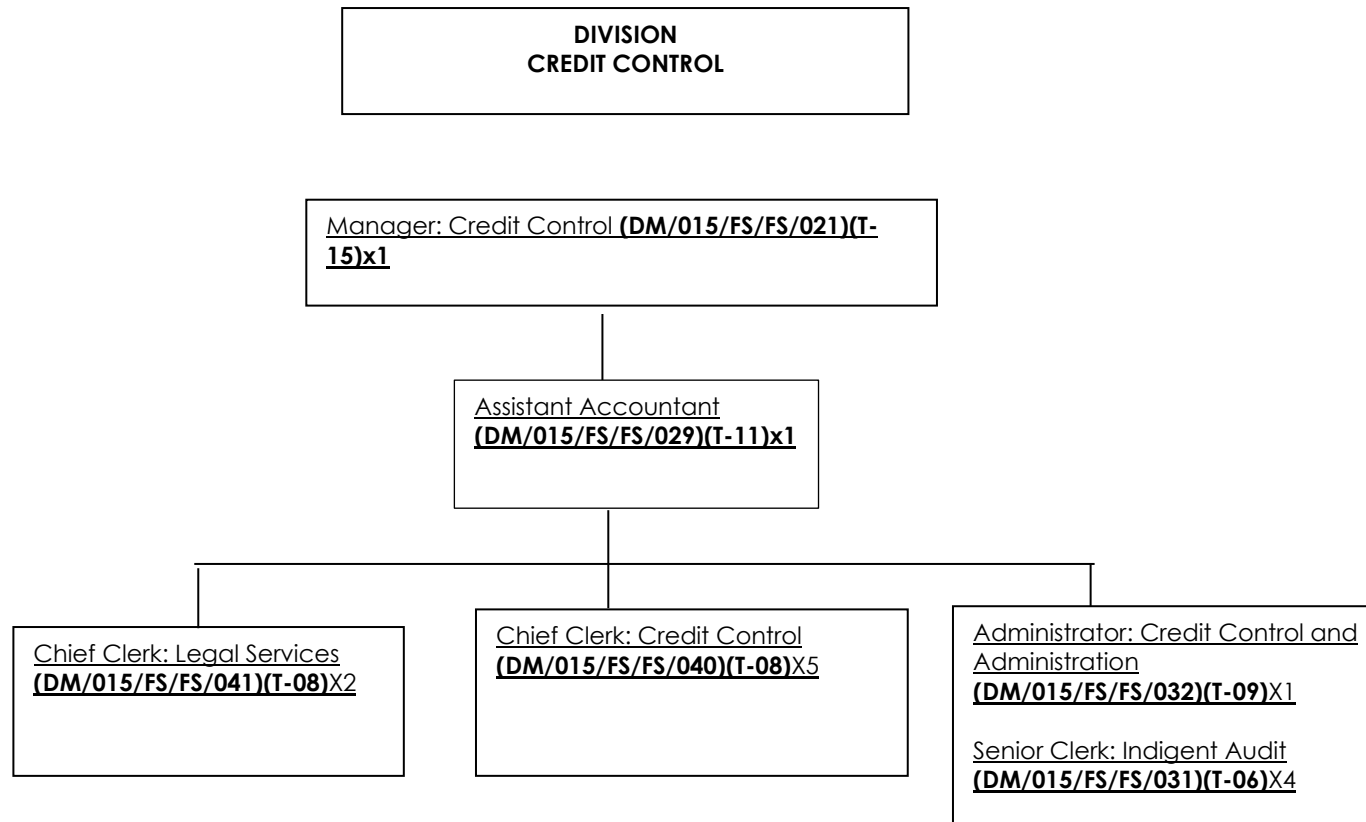


## DIRECTORATE FINANCIAL SERVICES



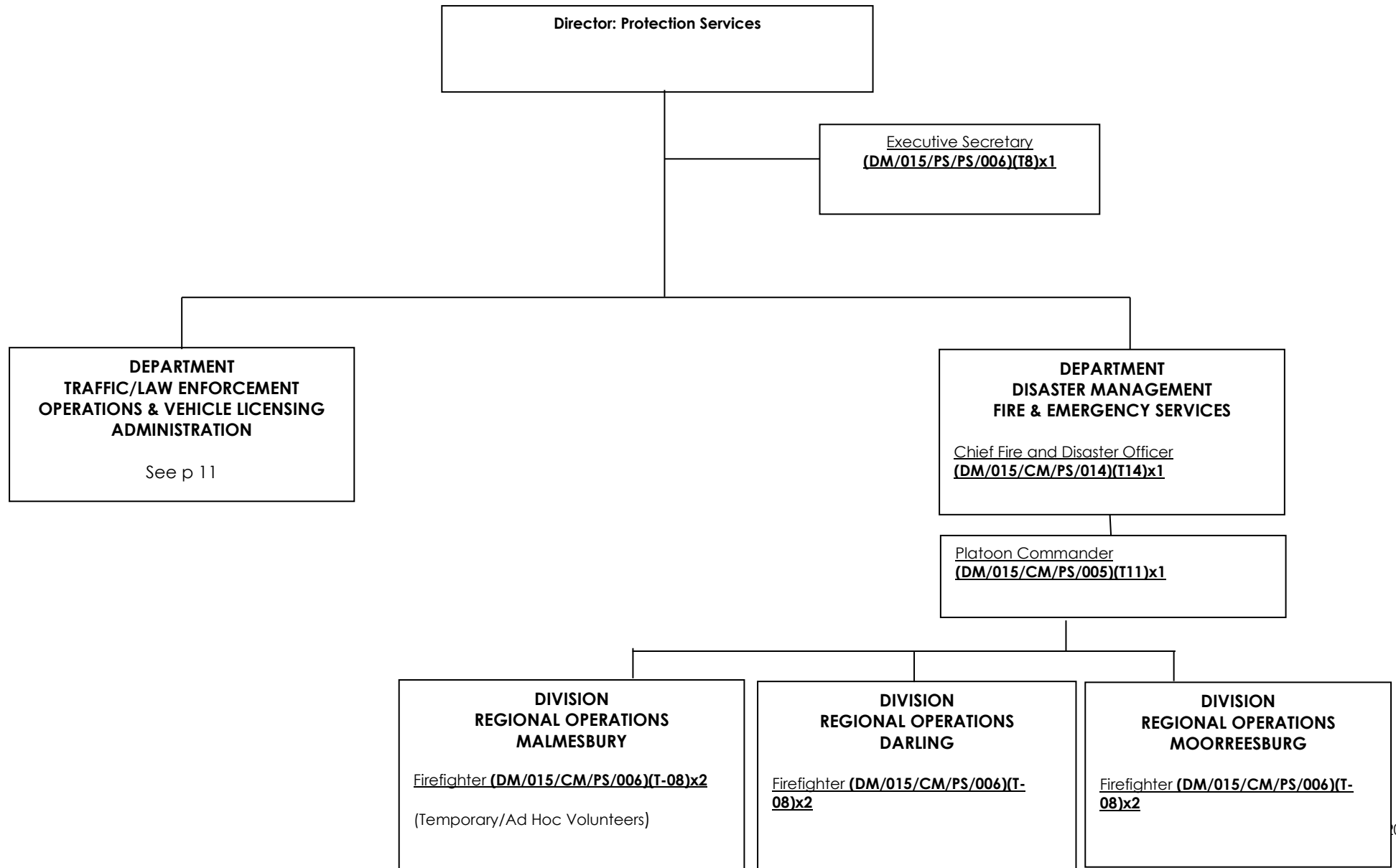




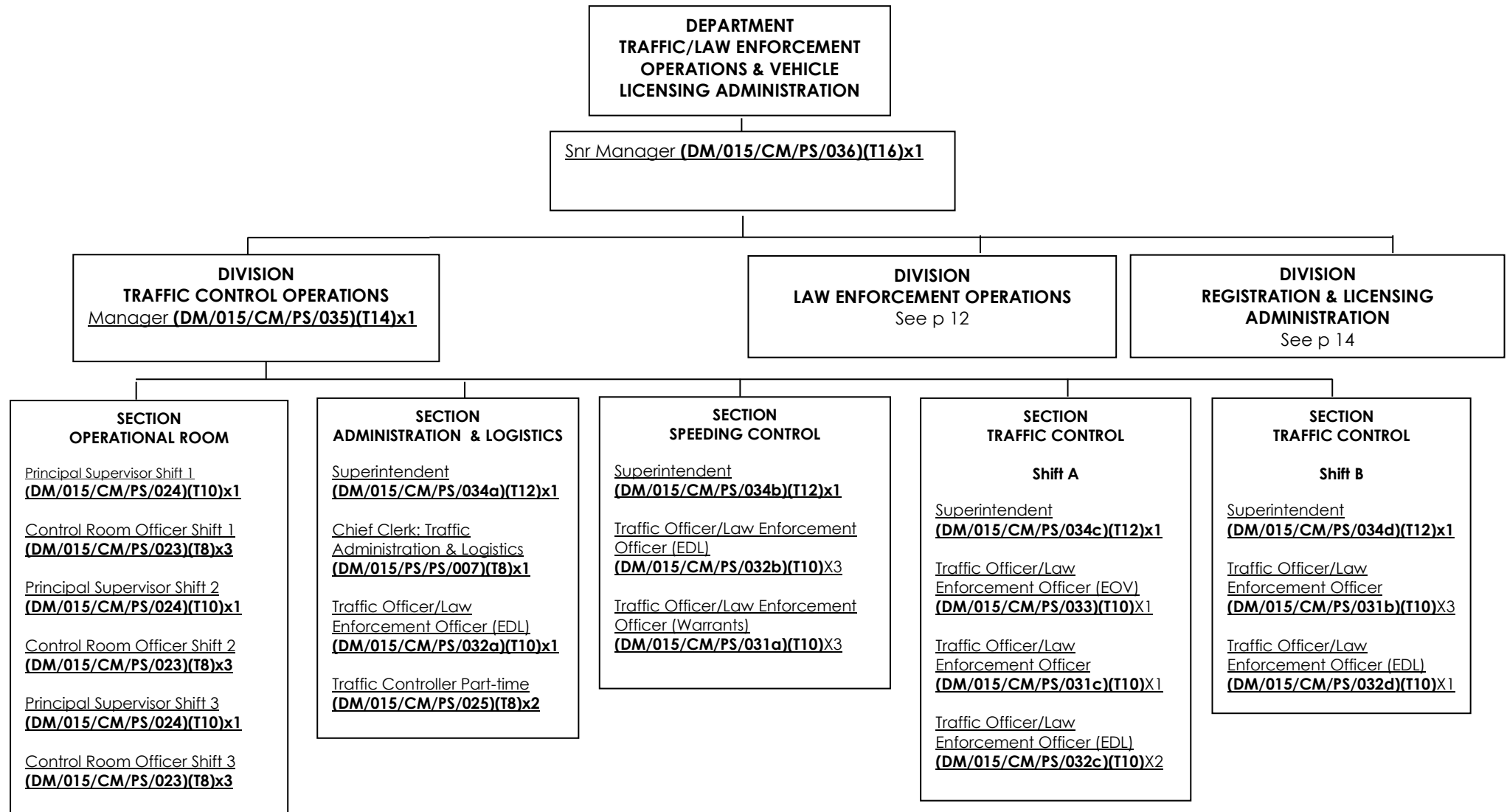
**DIRECTORATE FINANCIAL SERVICES**



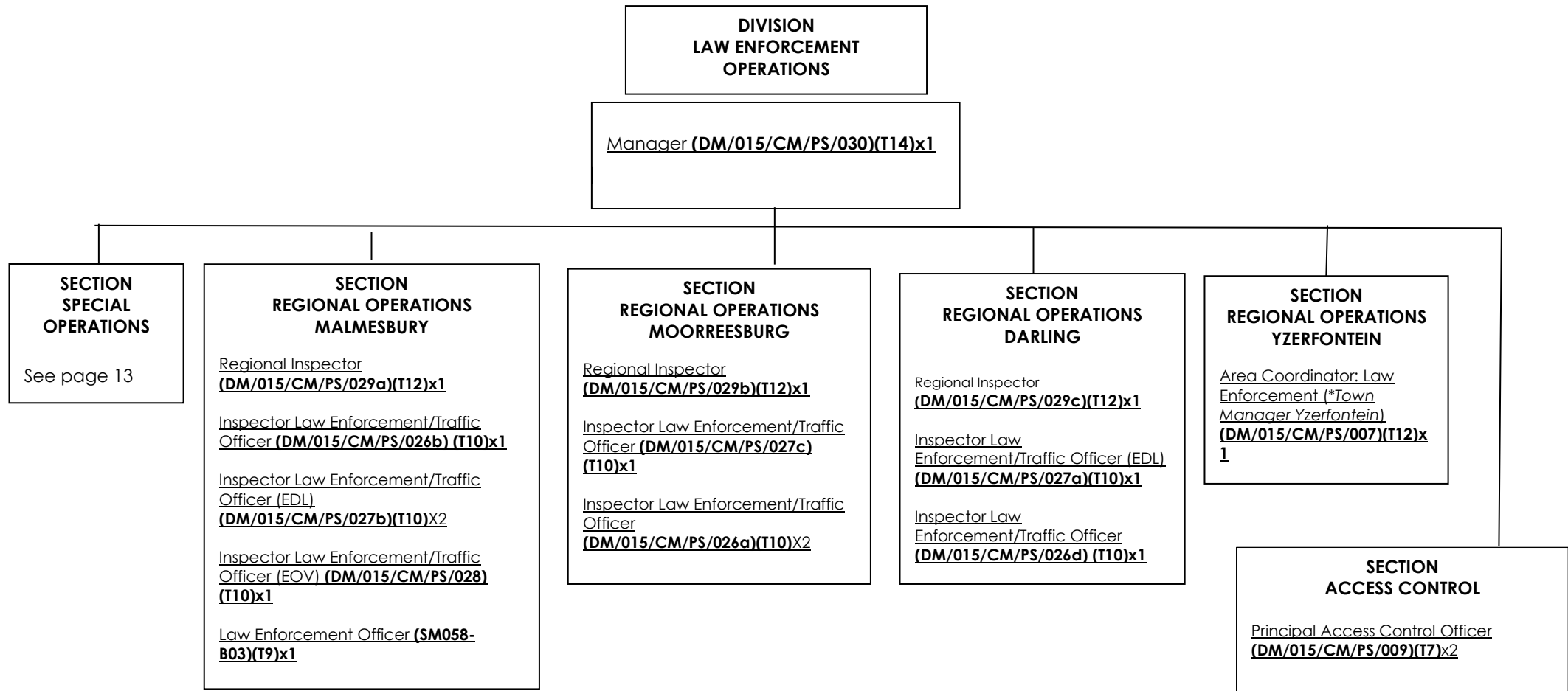
**SWARTLAND MUNICIPALITY  
APPROVED ORGANISATIONAL STRUCTURE  
DIRECTORATE PROTECTION SERVICES  
Approved by Council on 26 January 2023**



## DIRECTORATE PROTECTION SERVICES

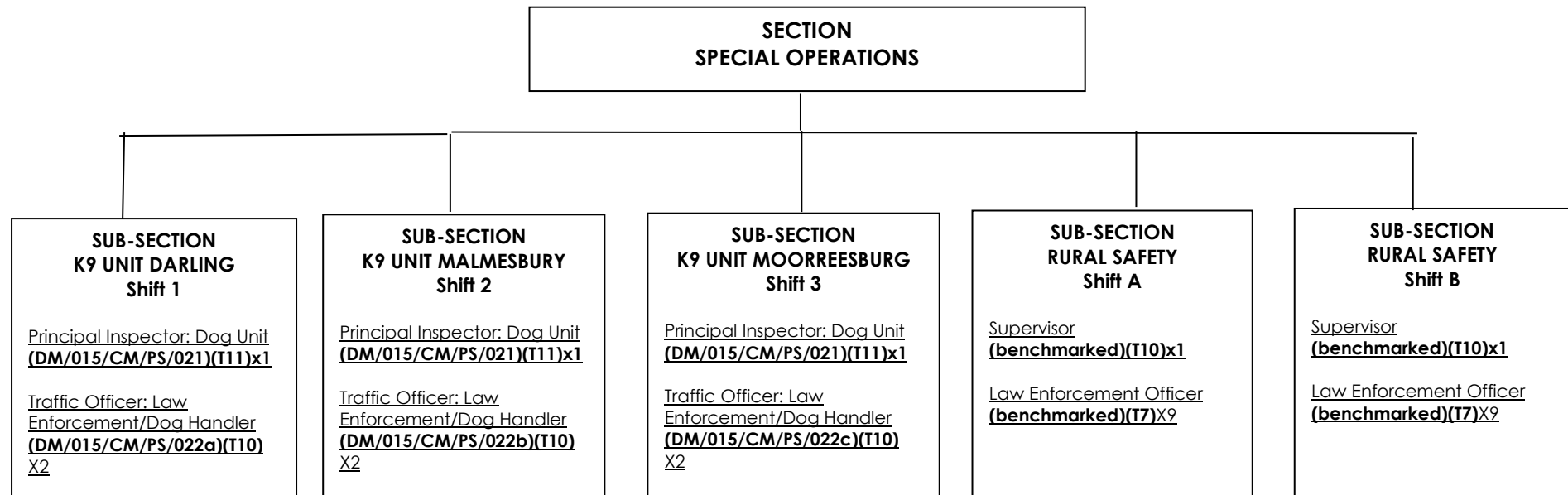


## DIRECTORATE PROTECTION SERVICES

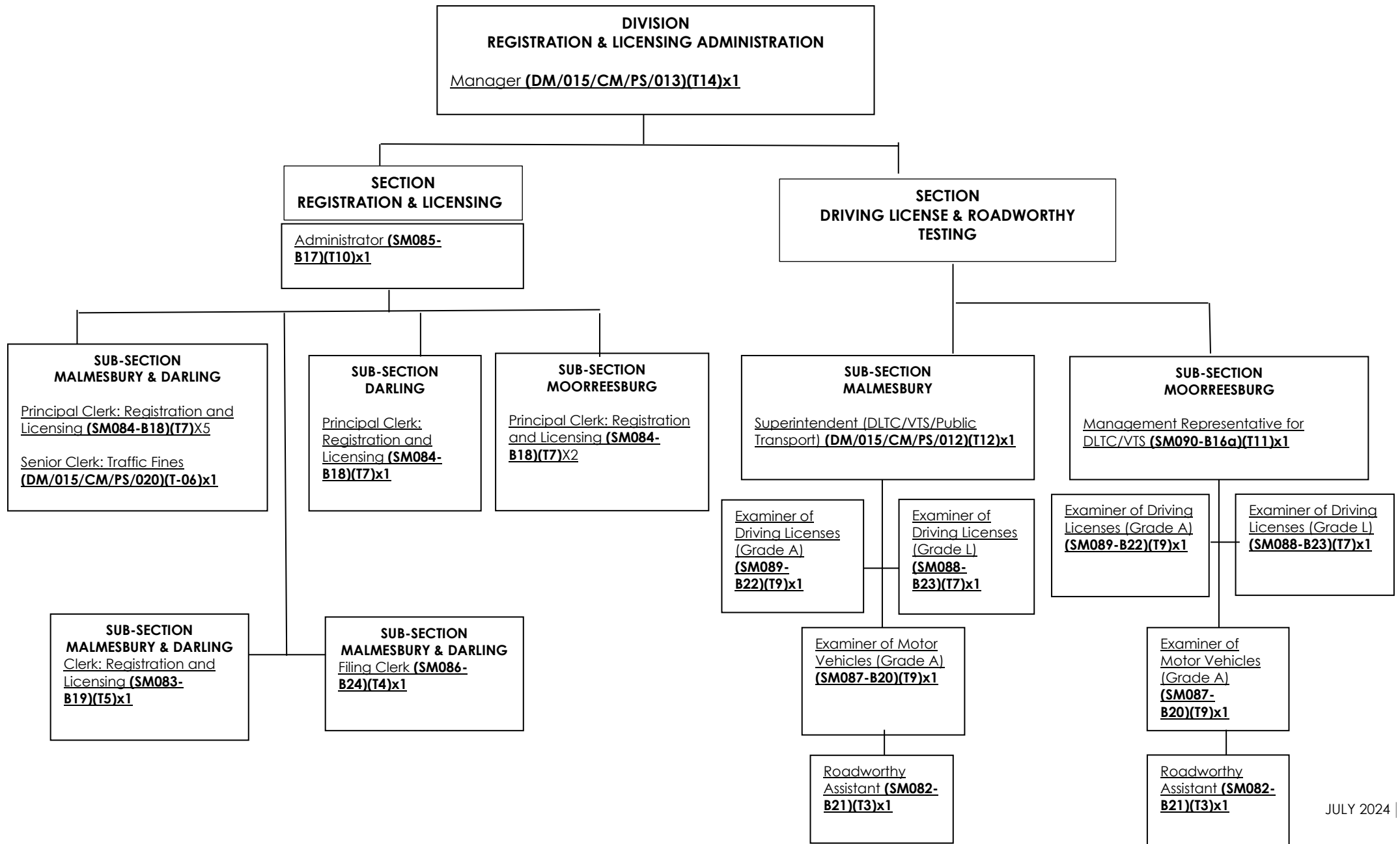




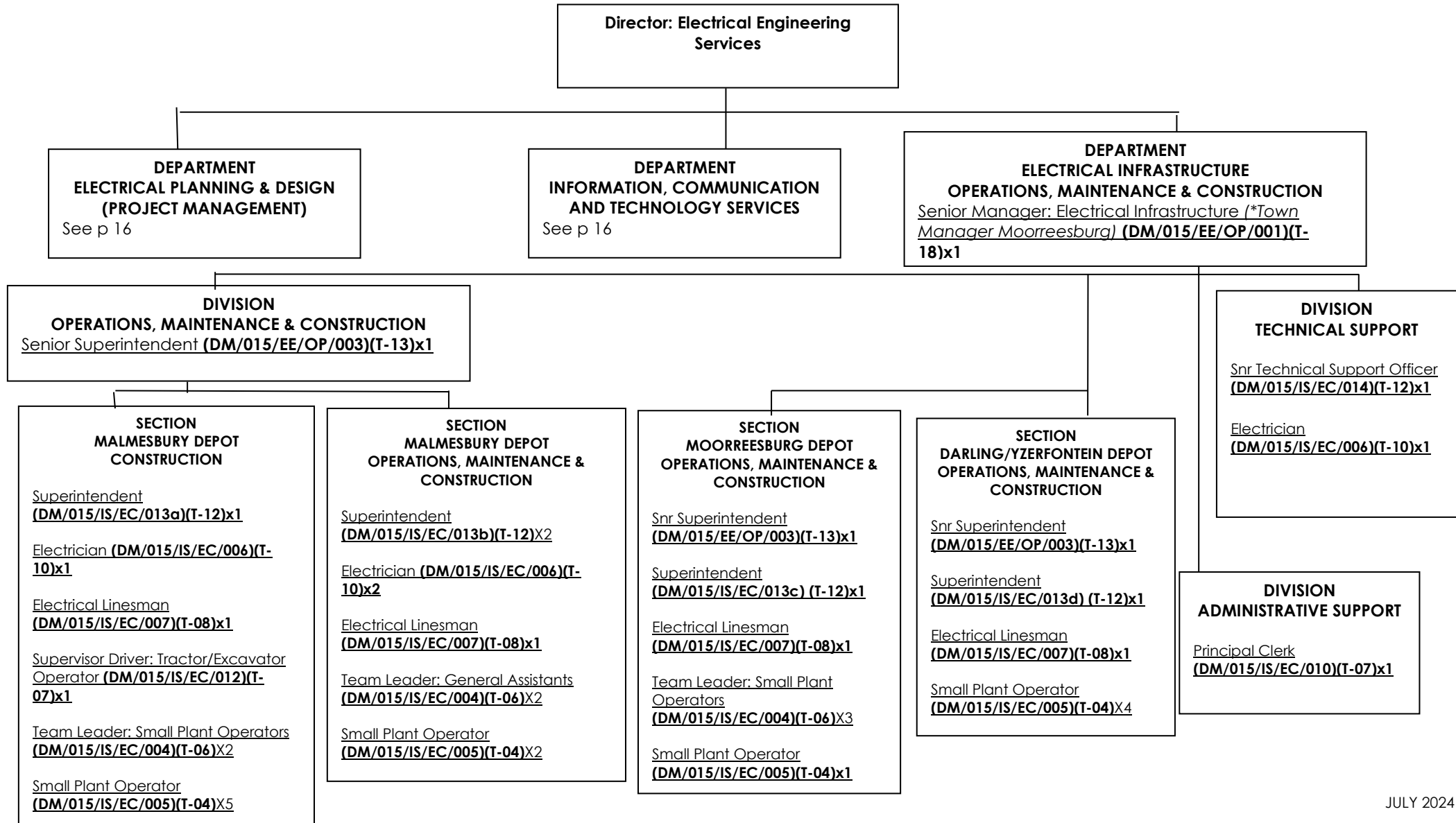
## DIRECTORATE PROTECTION SERVICES



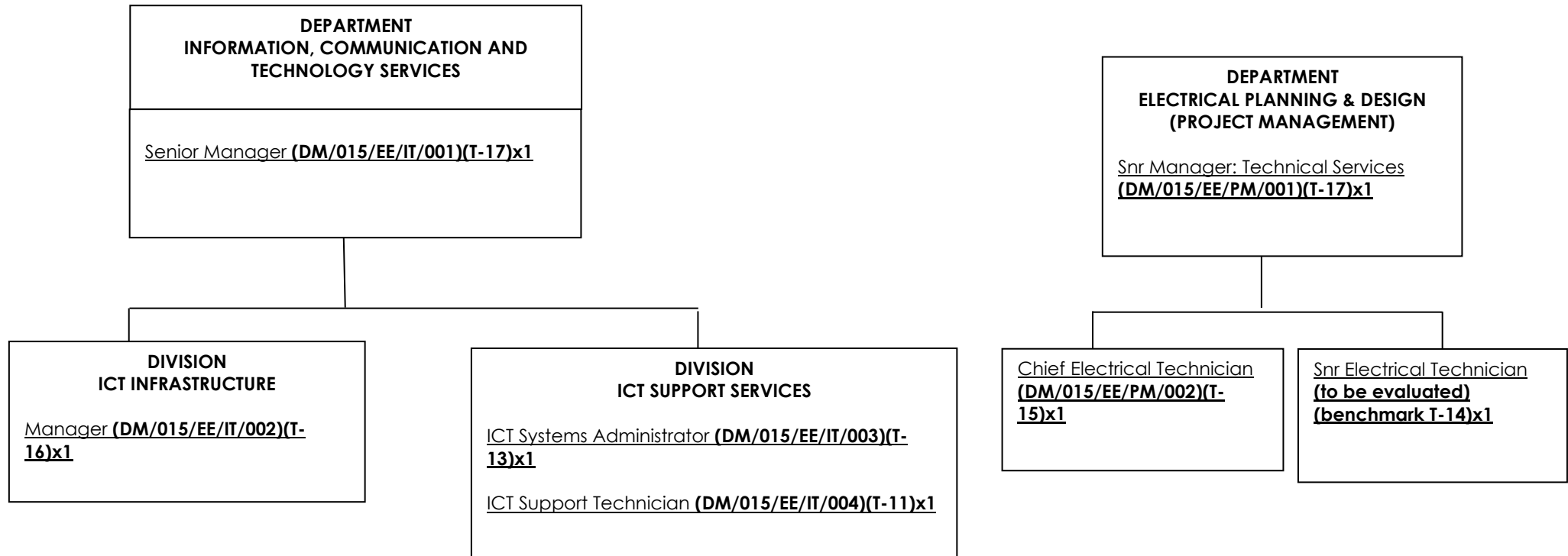
## DIRECTORATE PROTECTION SERVICES



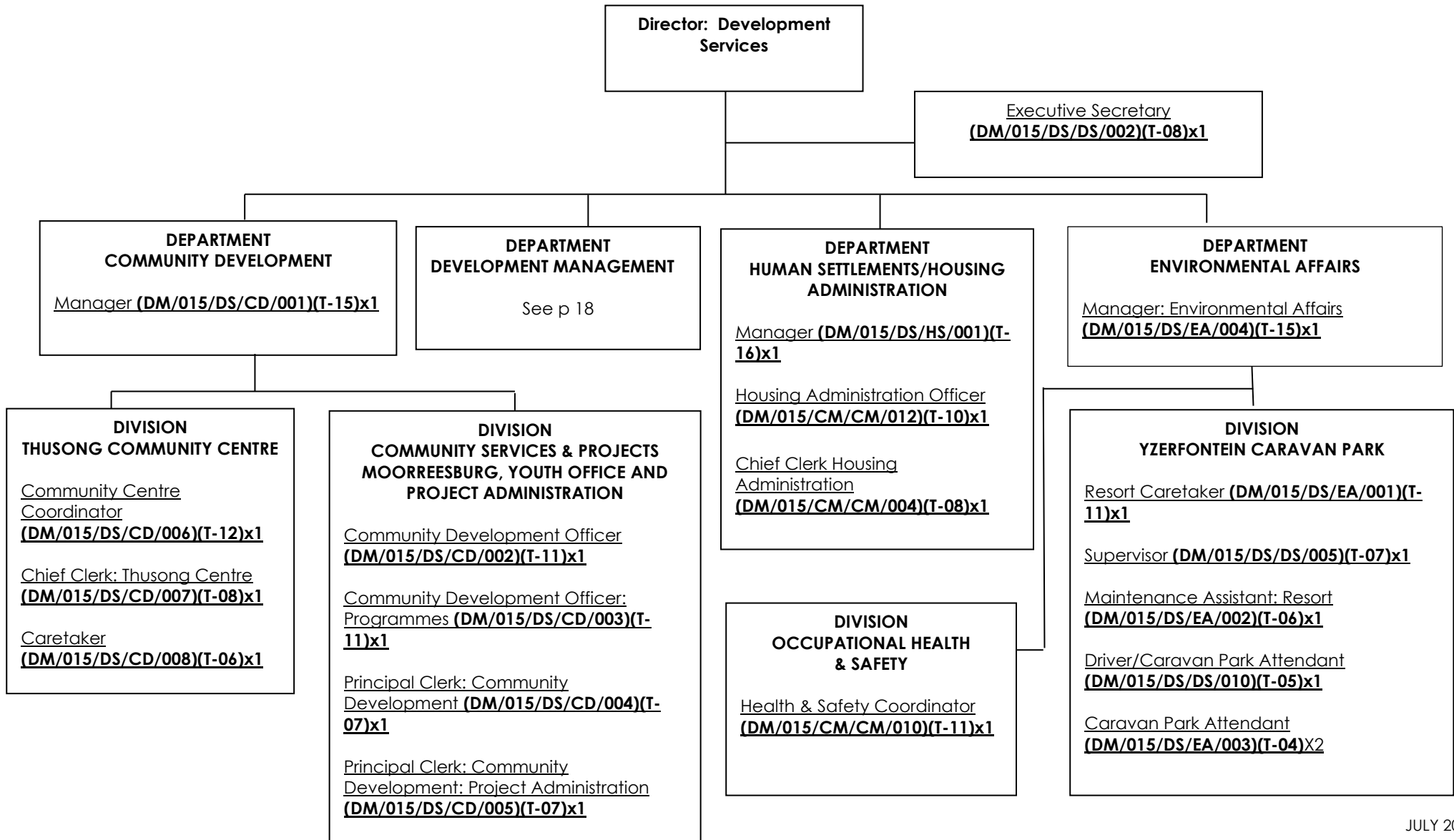
**SWARTLAND MUNICIPALITY**  
**APPROVED ORGANISATIONAL STRUCTURE**  
**DIRECTORATE ELECTRICAL ENGINEERING SERVICES**  
 Approved by Council on 26 January 2023



## DIRECTORATE ELECTRICAL ENGINEERING SERVICES

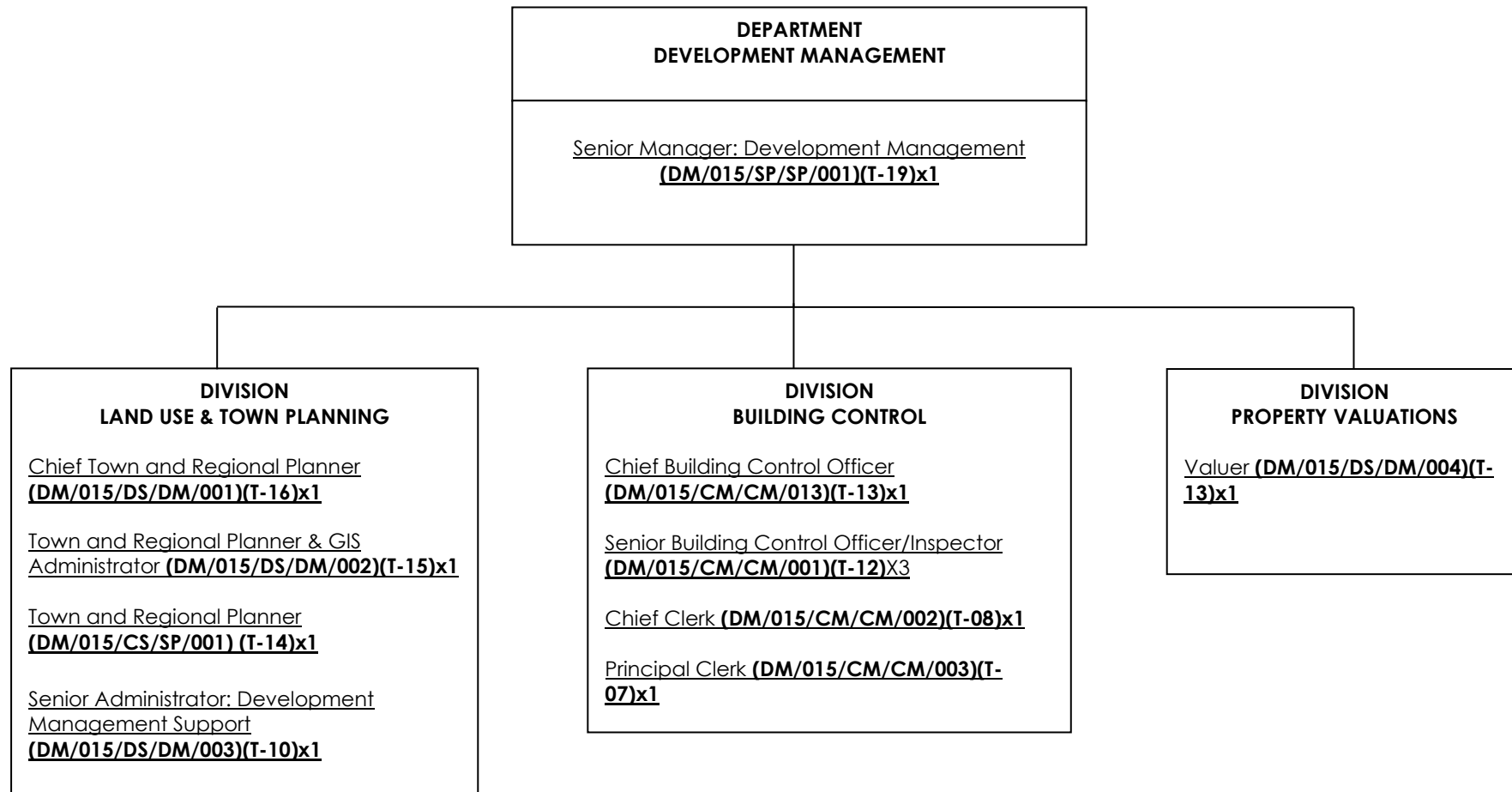


**SWARTLAND MUNICIPALITY**  
**APPROVED ORGANISATIONAL STRUCTURE**  
**DIRECTORATE DEVELOPMENT SERVICES**  
 Approved by Council on 26 January 2023

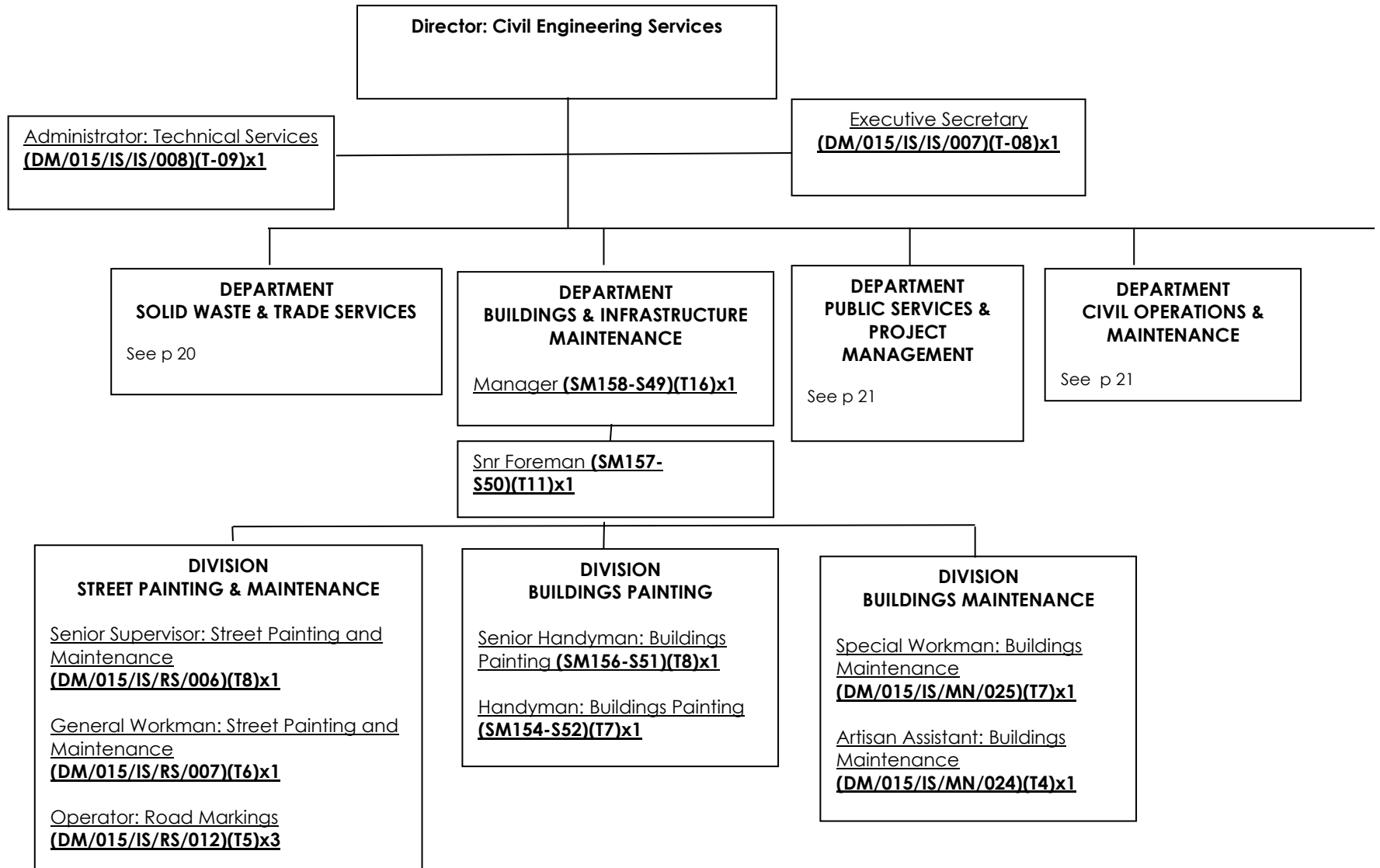


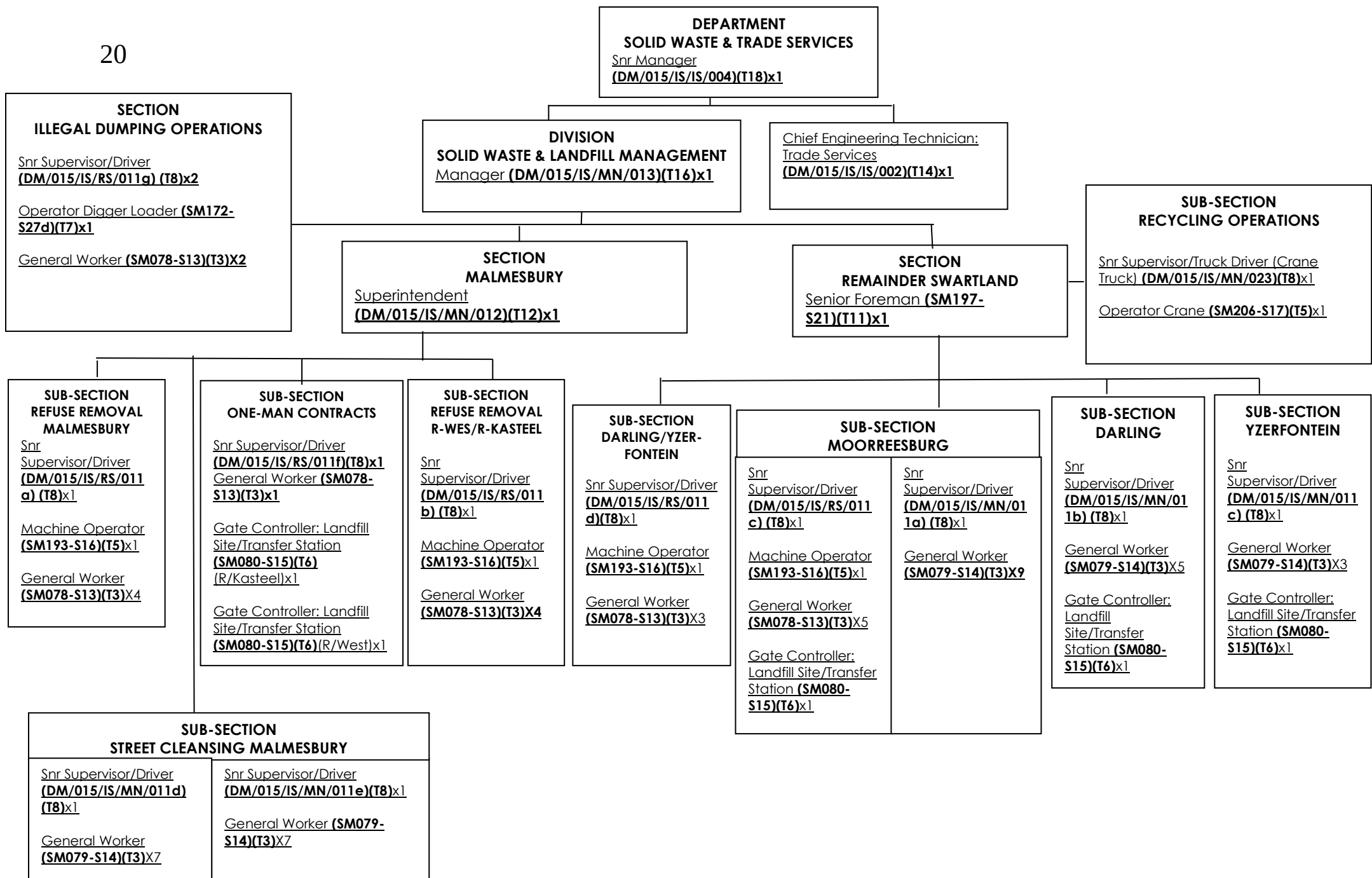


## DIRECTORATE DEVELOPMENT SERVICES



**SWARTLAND MUNICIPALITY  
APPROVED ORGANISATIONAL STRUCTURE  
DIRECTORATE CIVIL ENGINEERING SERVICES  
Approved by Council on 26 January 2023**





# DIRECTORATE CIVIL ENGINEERING SERVICES

## DEPARTMENT CIVIL OPERATIONS & MAINTENANCE

Snr Manager (DM/015/IS/MN/022)(T-17)x1

## DEPARTMENT PUBLIC SERVICES & PROJECT MANAGEMENT

Snr Manager (DM/015/IS/IS/003)(T17)x1

Chief Engineering Technician:  
Public Services  
(DM/015/IS/IS/001)(T-14)x1

Manager PMU  
(DM/015/IS/IS/006)(T-15)x1

EPWP Data Capturer  
(Contract)

**DIVISION  
WATER SERVICES**  
See p 22

**DIVISION  
SEWER & WASTE WATER TREATMENT WORKS**

Senior Superintendent (DM/015/IS/MN/009)(T-13)x1

**DIVISION  
ROADS AND STORM  
WATER**  
See p 23

**DIVISION  
PARKS AND RECREATION**  
See p 24

**SECTION  
SEWER TANK SERVICES**

Snr Supervisor/Truck Driver  
(DM/015/IS/MN/030) (T-08)x3

Small Plant Operator  
(DM/015/IS/MN/034)(T-04)x3

**SECTION  
BLOCKAGES AND PUMP  
STATIONS**

Senior Foreman  
(DM/015/IS/MN/018)(T-10)x1

Foreman  
(DM/015/IS/MN/017)(T-09)x1

Small Plant Operator  
(DM/015/IS/MN/010)(T-04)x3

General Attendant: Sewer &  
WWTW (DM/015/IS/MN/027)  
(T-04)x2

**SECTION  
MALMESBURY WASTE  
WATER TREATMENT WORKS**

Superintendent: Process  
Control Class V  
(DM/015/IS/MN/032)(T-12)x1

Assistant Superintendent:  
WWTW Class IV  
(DM/015/IS/MN/031)(T-11)x2

Process Controller Class I  
(DM/015/IS/MN/028)(T-06)x1

General Assistant  
(DM/015/IS/MN/026a)(T-03)x1

Senior Clerk: WWTW  
(DM/015/IS/MN/006)(T-06)x1

**SECTION  
PPC/MOORREESBURG  
WASTE WATER TREATMENT  
WORKS**

Principal Process Controller  
Class III  
(DM/015/IS/MN/016a)(T-09)x1

Process Controller Class II  
(DM/015/IS/MN/029) (T-07)x1

Snr Small Plant Operator  
(DM/015/IS/MN/005) (T-05)x2

**SECTION  
DARLING  
WASTE WATER TREATMENT  
WORKS**

Principal Process Controller  
Class III  
(DM/015/IS/MN/016b)(T-09)x1

Process Controller Class II  
(DM/015/IS/MN/015)(T-07)x1

Snr Small Plant Operator  
(DM/015/IS/MN/035a)(T-05)x1

General Assistant  
(DM/015/IS/MN/007)(T-03)x1

**SECTION  
RIEBEEK KASTEEL  
WASTE WATER TREATMENT  
WORKS**

Principal Process Controller  
Class III  
(DM/015/IS/MN/016c)(T-09)x1

Process Controller Class II  
(DM/015/IS/MN/014)(T-07)x1

Small Plant Operator  
(DM/015/IS/MN/008)(T-04)x2

# DIRECTORATE CIVIL ENGINEERING SERVICES

## DEPARTMENT CIVIL OPERATIONS & MAINTENANCE

### DIVISION WATER SERVICES

Area Superintendent (SM200-S42)(T13)x1

#### SECTION WATER SERVICES MAINTENANCE MALMESBURY

#### SECTION WATER SERVICES MAINTENANCE DARLING

<sup>(1)</sup>  
Snr Supervisor/Truck Driver (SM192-S30f)(T8)x1

Small Plant Operator (SM067-S03a)(T4)x1

General Assistant (SM169-S01x)(T3)x1

<sup>(3)</sup>  
Operator Digger Loader (SM172-S27d)(T7)x1

Supervisor/Storeman (SM170-S25a)(T7)x1

<sup>(4)</sup>  
Plumber (DM/015/IS/MN/020) (T10)x1

Supervisor / Driver (DM/015/IS/MN/021) (T7)x1

Small Plant Operator (SM067-S03p)(T4)x1

Team Leader (Gen Assts)(SM066-S02i)(T6)x1

General Assistant (SM169-S01r)(T3)x1

<sup>(5)</sup>  
Plumber (DM/015/IS/MN/020) (T10)x1

Small Plant Operator (SM067-S03s)(T4)x1

Team Leader (Gen Assts)(SM066-S02i)(T6)x1

General Assistant (SM169-S01a)(T3)x2

<sup>(6)</sup>  
Plumber (DM/015/IS/MN/020) (T10)x1

Small Plant Operator (SM067-S03r)(T4)x1

Team Leader (Gen Assts)(SM066-S02k)(T6)x1

General Assistant (SM169-S01u)(T3)x1

<sup>(7)</sup>  
Plumber (DM/015/IS/MN/020) (T10)x1

Small Plant Operator (SM067-S03t)(T4)x1

General Assistant (SM169-S01v)(T3)x2

Plumber (DM/015/IS/MN/020) (T10)x1

Small Plant Operator (DM/015/IS/MN/019(b)) (T4)x2

General Assistant (SM169-S01w)(T3)x1

#### SECTION WATER SERVICES MAINTENANCE MOORREESBURG

Plumber (DM/015/IS/MN/020) (T10)x1

Team Leader (Gen Assts)(SM066-S02f)(T6)x1

Small Plant Operator (DM/015/IS/MN/019a) (T4)x1

General Assistant (SM169-S01s)(T3)x2

<sup>(2)</sup>  
Bricklayer (SM069-S06d)(T9)x1

General Assistant (SM169-S01t)(T3)x2

# DIRECTORATE CIVIL ENGINEERING SERVICES

## DEPARTMENT CIVIL OPERATIONS & MAINTENANCE

**DIVISION**  
**ROADS AND STORM WATER**  
Senior Superintendent (DM/015/IS/RS/029)(T-13)x1

Supervisor/Storeman  
(DM/015/IS/RS/027)(T-07)x1

### SECTION DARLING

Asst Superintendent  
(DM/015/IS/RS/005a)(T-11)x1

Artisan/Bricklayer  
(DM/015/IS/RS/003c)(T-09)x1

Operator: Grader Final  
Layer and Digger Loader  
(DM/015/IS/RS/022)(T-09)x1

Snr Supervisor/Truck Driver  
(DM/015/IS/RS/024c)(T-08)x2  
Senior Truck Driver: Digger  
Operator  
(DM/015/IS/RS/021)(T-07)x1

Supervisor/Storeman  
(DM/015/IS/RS/026)(T-07)x1

Senior Operator: Roller  
(DM/015/IS/RS/017b)(T-06)x1

Small Plant Operator  
(DM/015/IS/RS/010b)(T-04)x1

Small Plant Operator  
(DM/015/IS/RS/013e)(T-04)x1

General Assistant  
(DM/015/IS/RS/008g)(T-03)x3

### SECTION CONSTRUCTION & MAINTENANCE Team A

Asst Superintendent  
(DM/015/IS/RS/005b)(T-11)x1

Artisan/Bricklayer  
(DM/015/IS/RS/003a)(T-09)x1

Snr Supervisor/Truck Driver  
(DM/015/IS/RS/024b)(T-08)x1

Senior Operator: Roller  
(DM/015/IS/RS/017a)(T-06)x1

Operator: Mechanical Plant  
(DM/015/IS/RS/016)(T-05)x1

Small Plant Operator  
(DM/015/IS/RS/030)(T-04)x1

Small Plant Operator  
(DM/015/IS/RS/013b)(T-04)x1

Gen Asst/Store Attendant  
(DM/015/IS/RS/009)(T-04)x1

General Assistant  
(DM/015/IS/RS/008h)(T-03)x3

### SUB-SECTION MAINTENANCE: SIDEWALKS & STORM WATER RIEBEKE

Snr Supervisor/Truck  
Driver  
(DM/015/IS/RS/024a)(T-08)x1

Senior Operator:  
Mechanical Plant  
(DM/015/IS/RS/018)(T-06)x1

Small Plant Operator  
(DM/015/IS/RS/010a)(T-04)x6

### SUB-SECTION CONSTRUCTION & MAINTENANCE: GRADING

Operator: Grader Final  
Layer and Digger Loader  
(DM/015/IS/RS/023)(T-09)x1

General Assistant  
(DM/015/IS/RS/008b)(T-03)x1

### SECTION CONSTRUCTION & MAINTENANCE Team B

Asst Superintendent  
(DM/015/IS/RS/005c)(T-11)x1

Artisan/Bricklayer  
(DM/015/IS/RS/003b)(T-09)x1

Snr Supervisor/Truck Driver  
(DM/015/IS/RS/024c)(T-08)x1

Senior Truck Driver: Loader  
Operator  
(DM/015/IS/RS/019)(T-07)x1

Small Plant Operator  
(DM/015/IS/RS/014b)(T-04)x2

Small Plant Operator  
(DM/015/IS/RS/013)(T-04)x1

General Assistant  
(DM/015/IS/RS/008d)(T-03)x4

### SECTION MAINTENANCE: PATCHWORK

Foreman  
(DM/015/IS/RS/004)(T-09)x1

Senior Operator: Roller  
(DM/015/IS/RS/017d)(T-06)x1

Small Plant Operator  
(DM/015/IS/RS/014c)(T-04)x1

Small Plant Operator  
(DM/015/IS/RS/013c)(T-04)x1

General Assistant  
(DM/015/IS/RS/008e)(T-03)x3

### SUB-SECTION MAINTENANCE: SIDEWALKS & STORM WATER MALMESBURY

Snr Supervisor/Truck Driver  
(DM/015/IS/RS/024d)(T-08)x1

Small Plant Operator  
(DM/015/IS/RS/014a)(T-04)x1

General Assistant  
(DM/015/IS/RS/008c)(T-03)x2

### SECTION MOORREESBURG

Asst Superintendent  
(DM/015/IS/RS/005d)(T-11)x1

Artisan/Bricklayer  
(DM/015/IS/RS/003d)(T-09)x1

Snr Supervisor/Truck Driver  
(DM/015/IS/RS/025)(T-08)x1

Operator Grader (Final Layer)  
(SM173-S28b)(T9)x1

Snr Truck Driver: Digger  
Operator (DM/015/IS/RS 020)  
(T-07)x1

Senior Operator: Roller  
(DM/015/IS/RS/017c)(T-06)x1

Small Plant Operator  
(DM/015/IS/RS/015)(T-04)x1

Small Plant Operator  
(DM/015/IS/RS/013d)(T-04)x1

General Assistant  
(DM/015/IS/RS/008f)(T-03)x4

### SUB-SECTION MAINTENANCE: SIDEWALKS & STORM WATER YZERFONTEIN

Snr Supervisor/Truck Driver (DM/015/IS/RS/028)(T-08)x1

Small Plant Operator (DM/015/IS/RS/010c)(T-04)x1

General Assistant (DM/015/IS/RS/008a)(T-03)x1



