ENVIRONMENTAL ASSESSMENT REPORT

Rosebery Wastewater Treatment Plant and Discharge

Direens Corner, Rosebery

Tasmanian Water and Sewerage Corporation Pty Ltd
(TasWater)

Board of the Environment Protection Authority
October 2014
## Environmental Assessment Report

<table>
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<tr>
<th>Proponent</th>
<th>Tasmanian Water and Sewerage Corporation Pty Ltd t/a TasWater</th>
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## Assessment process milestones

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Report summary

This report provides an environmental assessment of the Tasmanian Water and Sewerage Corporation’s (TasWater) proposed wastewater treatment plant (WWTP) at Direens Corner and discharge outfall into the Stitt River at Rosebery.

The proposal involves the installation and operation of a new WWTP to service the Rosebery township. The WWTP has been designed to receive and treat an average daily flow of 0.41 ML/day and an expected maximum pump flow of 4.06 ML/day during wet weather. Of the expected peak wet weather flow 2.76 ML/day will be fully treated and the remaining bypassing the WWTP for discharge after primary treatment (screened only). Treated wastewater will be discharged from a new outfall to the Stitt River downstream of the Rosebery township.

The proposal is defined as a ‘level 2 activity’ under clause 3(a), Schedule 2 of the Environmental Management and Pollution Control Act 1994 (EMPC Act), being the conduct of wastewater treatment works that involve the discharge of treated or untreated sewage, septic tank effluent or industrial or commercial wastewater to land or water, being works with a design capacity to treat an average dry-weather flow of 100 kilolitres or more per day of sewage or wastewater.

This report has been prepared based on information provided by the proponent (TasWater) in the Development Proposal and Environmental Management Plan (DPEMP) and supplementary information. Relevant government agencies and the public have been consulted and their submissions and comments considered as part of this assessment.

Further details of the assessment process are presented in section 1 of this report. Section 2 describes the statutory objectives and principles underpinning the assessment. Details of the proposal are provided in section 3. Section 4 reviews the need for the proposal and considers the proposal, site and design alternatives. Section 5 summarises the public and agency consultation process and the key issues raised in that process. The detailed evaluation of key issues is in section 6, and other issues are evaluated in section 7 and Appendix 1. The report conclusions are contained in section 8.

Appendix 2 contains details of comments made and issues raised in the consultation process. Appendix 3 contains environmental permit conditions for the proposal. Attachment 3 of the permit conditions contains the table of relevant commitments from the DPEMP and supplementary information.
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1 Approval process

On 1 July 2013 TasWater was established in accordance with the *Water and Sewerage Corporation Act 2012* and took over the responsibilities and assets of Cradle Mountain Water (CMW). The EPA Division of the Department of Primary Industries, Parks, Water and Environment (DPIPWE) was of the view that the transitional provisions of the Water and Sewerage Corporation Act did not provide for continuation of current development assessment and approval processes. The Division came to an agreement with TasWater that current assessment processes would continue on an informal basis until such time as a land use planning permit application was submitted to the relevant Council for each proposal. In the case of the Rosebery WWTP the Board required that information to support the proposal be provided in the form of a Development Proposal and Environmental Management Plan (DPEMP) prepared in accordance with guidelines issued by the Board on 12 February 2013 to CMW for the Rosebery WWTP.

An application for a permit under the *Land Use Planning and Approvals Act 1993* (LUPA Act) in relation to the proposal was submitted to the West Coast Council by TasWater on 3 December 2013. Section 25(1) of the EMPC Act required Council to refer the application to the Board for assessment under the EMPC Act. The application was received by the Board on 2 January 2014.

A number of drafts of the DPEMP were submitted to the EPA Division for comment prior to its finalisation and acceptance on behalf of the Board on 2 July 2014. The DPEMP was released for public inspection for a 28-day period commencing on 12 July 2014. Advertisements were placed in the *Saturday Advocate* and on the EPA website. The DPEMP was also referred at that time to relevant government agencies for comment. No public submissions were received.

On 15 August 2014, the Board requested that TasWater submit supplementary information to address government agency (including DPIPWE) comments on the DPEMP and to meet other information requirements. Satisfactory supplementary information was submitted by TasWater on 18 September 2014.
2 SD objectives and EIA principles

The proposal must be considered by the Board in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and in the context of the objectives of the Environmental Management and Pollution Control System (EMPCS) (both sets of objectives are specified in Schedule 1 the EMPC Act). The functions of the Board are to administer and enforce the provisions of the Act, and in particular to use its best endeavours to further the RMPS and EMPCS objectives.

The Board must undertake the assessment of the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of the EMPC Act.
3 The proposal

The proposal is for a new wastewater treatment plant (WWTP) to service the Rosebery township. The WWTP will be a sequencing batch reactor (SBR) system designed to treat a theoretical average dry weather flow of 0.24 ML/day, a daily flow of 0.41 ML/day and an expected maximum pumped flow to the WWTP of 4.06 ML/day during wet weather. Of these 4.06 ML/day, 2.76 ML/d will be fully treated and the remaining 1.3ML/d primary treated (screened) only. The WWTP will discharge treated wastewater to the Stitt River via a new outfall. A new balance tank to temporarily hold treated wastewater and allow more controlled discharge to the Stitt River is also intended to manage flow rates during extreme dry weather.

The intended WWTP is to be located at Direens Corner at the end of Chester Avenue, Rosebery about one kilometre west of the town centre. The site incorporates a disused sewage treatment tank and is situated on Crown land (the WWTP and road for which are currently being purchased by TasWater). In addition to the WWTP components, the site will include an amenities building and car parking. The proposed outfall is located north of the intended WWTP site, with the 200 metre long pipeline passing through a steep section of Crown land (to be leased from Crown Land) and into the Stitt River, 300 metres downstream of Stitt Falls and the Rosebery Township. A network upgrade strategy has been identified which incorporates the construction of new gravity and rising mains that connect the 3 existing sewer pumping stations (SPS) at Sterling Valley, Park Road and Dalmeny Estate to the proposed new WWTP site. The upgrade is not part of the assessment but its implementation will influence the environmental outcomes of the WWTP development.

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 2 of the DPEMP.

Table 1: Summary of the proposal’s main characteristics

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<thead>
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<td>Flora</td>
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1 Appendix Q, Geotechnical investigation and landslide risk assessment, GeoTon Pty Ltd.  
2 Appendix Q, ibid  
3 Appendix P, Ecological assessment of proposed WWTP, Stitt River, Rosebery, Tasmania, ECOTas.  
4 Appendix L, Biological condition of the Stitt River and Lake Pieman in relation to the TasWater Rosebery WWTP discharge: Survey of aquatic biota, autumn 2013, Freshwater Systems.  
5 ibid  
6 Appendix P, op. cit.
### Local region

| **Climate** | Average annual rainfall in Rosebery is about 2,040mm. July and August are typically the wettest months. Higher wind speeds originate from the southwest through to the north, primarily in the afternoon. |
| **Surrounding land zoning, tenure and uses** | With reference to the *West Coast Interim Planning Scheme 2013*, much of the surrounding land is zoned Rural Resources, with pockets of Residential and Recreational zoning within a few hundred metres of the nominated WWTP site. Land tenure is a mix of Crown land and privately held lots. Rosebery’s business centre lies about 1km east of the proposed WWTP site. |
| **Species of conservation significance** | Tasmanian devil. Field survey concluded that no further surveying (e.g. camera assisted trapping) was necessary, due to the absence of devil scats and/or dens from the proposed site*. (DPEMP, Part 3.2.3.2, p51) |

### Proposed infrastructure

| **Major equipment** | Components of a sequencing batch reactor (SBR) WWTP, including: |
| | - Inlet works including inlet screen and grit removal |
| | - Various wastewater tanks including inflow balance tank, SBR tank, effluent balance tank |
| | - Various other tanks and bins |
| | - Sludge belt press |
| | - Screen filter and multi-media filter |
| | - UV treatment |
| (see Figure 2) |
| **Other infrastructure** | Pumping capacity upgrade of three existing sewage pump stations (SPSs) at Rosebery |
| | Generator sets to drive Park Rd SPS and WWTP during periods of electricity service disruptions. |
| | New gravity and rising mains that connect three SPSs to the proposed WWTP site. |
| | Amenity building and parking area. |
| | Outfall pipeline and discharge. |

### Inputs

| **Water** | Extension of mains water supply (underground) necessary. |
| **Energy** | Most appliances (e.g. pumps, aerators, belt press) will be electric. Extension of electricity (overhead supply) network necessary. |
| | Genset and utility vehicles will use minimum amounts of diesel. |
| **Other raw materials** | Dosing of poly-alum or similar for phosphorus removal |
| | Caustic soda or similar for pH adjustment |

### Wastes and emissions

| **Liquid** | Treated wastewater to Stitt River outfall. |
| | Clean stormwater from roofed (e.g. amenities building) and hardstand (e.g. car park) areas will be directed to ephemeral creek to the west of the site. |
| **Atmospheric** | Construction: dust. |
| | Operation: Emissions from wastewater treatment process, particularly odourous gases. |

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*ibid*

*Appendix L, op. cit.*

*Appendix P, op. cit.*
### Solid

- General refuse including food scraps, office consumables, packaging and beverage containers.
- Sludge (biosolids).
- Grit and similar materials captured at inlet works.

### Noise

- Construction: From earthmoving equipment and mobile plant.
- Operation: From inlet works, pumps, mixers, aerators, blowers and vehicle movement (e.g. sludge collection and removal).

### Greenhouse gases

- The treatment process chosen by TasWater is full aerobic treatment, converts all of the carbon not captured as biomass into CO2. Fugitive emissions at the plant are estimated to be around 200kg/d. TasWater will report to NGERS and Rosebery STP’s emissions will be calculated at that time as will the electricity associated with running the plant.

### Construction, commissioning and operations

#### Proposal timetable

- Planning permit issued Oct 2014
- Commence construction Nov 2014
- Complete construction March 2015
- Commissioning by 30th June 2015

#### Operating hours (ongoing)

- All hours.
Figure 1: Proposed location (Figure 1 of the DPEMP)
Figure 2: Site plan showing WWTP components (Appendix D of the DPEMP Supplement).
4 Need for proposal and alternatives

Rosebery’s domestic wastewater currently reports for treatment to two disused tailings dams and a mine water treatment plant operated by Minerals and Metals Group (MMG). Wastewater is discharged periodically to Lake Pieman after treatment. This arrangement will cease by about July 2015 as MMG proposes to recommission the dams for mining purposes.

Consequently, developing an alternative arrangement to effectively capture and adequately treat Rosebery’s domestic wastewater is necessary. The aims of the proposal, according to section 1.1 of the DPEMP, are therefore to:

- Maintain a reticulated sewerage system for the Rosebery township.
- Provide a single collection, treatment and disposal point for Rosebery’s wastewater.
- Redirect all sewage away from existing MMG tailings dams.
- Minimise environmental impacts due to the construction and operation of a new WWTP.
- Improve effluent quality and provide a single discharge location for a high level of treatment based on the quality of receiving waters.

TasWater investigated a number of alternatives to a single dedicated WWTP for Rosebery, including:

1. Implementing an effluent reuse scheme with no discharge to tailings dams or waterways.
2. Constructing multiple, small WWTPs at existing SPS sites.

According to Section 2.7.1 of the DPEMP, an assessment found that Rosebery’s high annual average rainfall precluded a viable wastewater reuse scheme.

As detailed in Section 2.7.2 of the DPEMP, after some initial investigations the construction of 3 separate small package type WWTP’s at each existing SPS site across Rosebery, with each discharging their effluent into the waterways adjacent to the stations, was not considered an appropriate long term solution for the following reasons:

1. Due to the significant annual rainfall in the area and large fluctuations in sewage inflow due to inflow and infiltration cross the catchment, the individual small WWTP’s would not be able to effectively treat the required flow fluctuations.
2. All proposed effluent discharge points are within the Rosebery township.
3. There is limited space available adjacent to each SPS to install a WWTP.
4. Each plant would be highly visible, and close to a number of sensitive receptors including houses.
5. The outcome would be multiple effluent discharge points in the region, which would require permits, management and monitoring.

TasWater also evaluated a number of local sites for their suitability to accommodate a new WWTP and outfall.

Section 2.1 of the DPEMP states that the proposed WWTP site at Direens Corner, Rosebery was identified as the preferred location based on social, engineering and environmental criteria which determined that the site:

1. Is set back from existing Rosebery residential areas, and downstream of the section of Stitt River that flows through the township,
2. Has good vehicular access off existing road networks, and an existing access track (which will be upgraded),
3. Already has an existing TW sewage treatment asset which defined existing sewage treatment processing had already been undertaken at the site (an 18 metre diameter, 1.4 metre high 0.3 ML open steel tank) with scope to expand the site to the west to accommodate the new plant,

4. Can accommodate the proposed plant area of 2.103 hectares (125 metres by 145 metres site footprint),

5. Is gently sloping across the proposed WWTP footprint area,

6. Has existing power to the access road (which will require extending into the WWTP site),

7. Has nearby reticulated water supply which will be extended into the site,

8. Allows for a gravity outfall discharge to the Stitt River, and

9. Has limited visibility from Rosebery and Chester Avenue since it is surrounded by trees.

The proposed outfall is located to the north of the WWTP site with the 120 metre long aboveground pipeline passing through a steep section of Crown Land and into the Stitt River (Easting 377875 Northing 5373831) 300 metres downstream of the Rosebery township’s Stitt Falls.

Section 2.1 of the DPEMP also identifies that several options were investigated as the where to locate the effluent discharge point. The two main options were either to discharge into Lake Pieman or the Stitt River. The Stitt River was selected since the discharge will be into flowing water rather than the fluvial and therefore sometimes slower flow of Lake Pieman. This significantly reduces the requirements for the mixing zone at the end of the outfall. Discharge into the Stitt River and Lake Pieman when combined together are considered to offer the best outcome for both mixing and dilution of the effluent. The location of the outfall on the Stitt River has been surveyed, and there is adequate fall across the site which confirms that the outfall will be entering flowing water.
5 Public and agency consultation

A summary of government agency/body submissions is contained in Appendix 1 of this report.

No public representations were received. The DPEMP was referred to a number of government agencies/bodies with an interest in the proposal. Responses were received from the following:

- Hydro Tasmania

The following Divisions/areas of the Department of Primary Industries, Parks, Water and Environment (DPIPWE) also provided comment on the DPEMP:

- Policy & Conservation Assessment Branch (Resource Management & Conservation)
- Noise Specialist, EPA Division
- Scientific Officer (Water), EPA Division
- Regulatory Officer (Wastewater Unit), EPA Division
- Scientific Officer (Air), EPA Division

The DPEMP Supplement prepared by TasWater provides a response to each of the relevant environmental issues raised by the government agencies/bodies.

TasWater also conducted its own public consultation process during early 2013, including a survey of Rosebery residents concerning their expectations for collection, treatment and disposal of domestic wastewater and where such activities may best occur.

TasWater intends to make the Rosebery WWTP DPEMP available on its Rosebery WWTP project website and at its offices in Forth.
6 Evaluation of key issues

The key environmental issues relevant to the proposal that were identified for detailed evaluation in this report were:

1. Ambient water quality: characterisation of receiving environment
2. Potential water quality impacts associated with discharge of treated wastewater to Stitt River
3. Impacts associated with construction of Stitt River outfall
4. Potential for air emissions from wastewater treatment plant to affect local sensitive receptors

Each of these issues are discussed in the following subsections.

6.1 Ambient water quality – characterisation of receiving waters

Description

As detailed in Section 2.1 of the DPEMP, TasWater selected the Stitt River as the location for the outfall to ensure effluent discharge was into flowing water rather than the fluvial and therefore sometimes slower flow of Lake Pieman. This was expected to reduce the requirements for the mixing zone at the end of the outfall and the combination of discharge into the Stitt River and Lake Pieman was considered to offer the best outcome for both mixing and dilution of the effluent.

The State Policy on Water Quality Management 1997 (SPWQM) provides a framework for the development of ambient water quality objectives and the management and regulation of point and diffuse sources of emissions to surface waters (including coastal waters) and groundwater. Under the SPWM, Protected Environmental Values (PEVs) - values or uses of the environment for which it has been determined that a given area of the environment should be protected - have been set for the West Coast Municipal Council surface waters. The PEVs that apply to the waters in the vicinity of the proposed WWTP are to provide water of a physical and chemical nature:

- To support a healthy, but modified aquatic ecosystem from which edible fish may be harvested;
- which will allow people to safely engage in recreation activities such as swimming, kayaking, paddling or fishing (where such activities are permitted) in aesthetically pleasing waters; and
- which is also suitable for hydro-electric power generation (following impoundment).

The Environmental Management Goals For Tasmanian Surface Waters West Coast Municipal Area (Excluding the Gordon and Pieman River Catchments) (DPIWE, 2000) paper notes that historic mining activities or other historic land uses may have resulted in long term water quality impacts and this should be taken into consideration when applying PEVs.

The establishment of PEVs allows for a stringent set of water quality guidelines to be set for specific water bodies in the form of Water Quality Objectives (WQOs). At the time of assessment

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10 Environmental Management Goals For Tasmanian Surface Waters West Coast Municipal Area (Excluding the Gordon and Pieman River Catchments), DPIWE, December 2000.
WQOs had not been set for the Stitt River, however draft WQOs had been developed by the EPA Division. The draft WQOs were used as a basis for developing an Ambient Monitoring Program (AMP) for TasWater to investigate and characterise the existing environment, particularly the local catchment, influent and intended receiving environment (Stitt River) for the proposed WWTP. A copy of the draft WQOs for the Stitt River is included in Appendix M of the DPEMP.

TasWater was required to develop and institute the AMP in order to:

- Gauge the potential water quality impacts of treated wastewater on the Stitt River.
- Further characterise Rosebery’s domestic wastewater (i.e. influent to WWTP).
- Help inform site-specific discharge limits that will not compromise draft water quality objectives (WQOs) at the discharge location.
- Ascertained background water quality and biological conditions as a baseline for future (operational) monitoring.
- Model discharge dispersion and dilution characteristics.\(^{11}\)

The Ambient Monitoring Plan (AMP) is included as Appendix K of the DPEMP. A plan showing the location of the monitoring sites is shown below in Figure 3 (Slide 3, AMP summary Data, Appendix K2a of the DPEMP, Note: SSP = Stitt River sites, and PSP = Lake Pieman sites):

**Figure 3 – AMP Monitoring Sites**

![AMP Monitoring Sites](image)

**Stitt River and Lake Pieman conditions**

In May 2013, TW engaged Peter Davies to prepare an aquatic flora and fauna report along the Stitt River in the vicinity of the proposed outfall pipeline and down to Pieman Lake as part of the AMP. A copy of this report, completed in August 2013 is included in Appendix L2. The Rosebery WWTP aquatic biota monitoring sites are shown in Figure 4 below.

\(^{11}\) Mixing zone assessment ultimately conducted separately and is discussed at Water quality impacts.
Figure 4: Receiving Water Monitoring Sites.

Briefly, the following points can be made about the water quality (including biological health) of the Stitt River at Rosebery:

- The low river flow regime is substantially influenced by water abstraction above the Stitt Falls (by MMG and for town water supply purposes). Water quality is affected by current and historic impacts and discharge from local mining operations and stormwater runoff and sewage overflows. Flows can be highly variable.
- Upstream of the township the river is noted to be in moderate to good condition with abundant and diverse macro-invertebrate population. Brown trout have been consistently observed.
- The lower Stitt River in the proximity of the intended WWTP outfall-is in poor to moderate ecological condition.\(^\text{12}\)
- Despite the poor biological condition, there was sufficient fauna at both sites S5 and S6 (see Figure 4 above) to act as a basis for future monitoring and detection of any potential impact from the proposed WWTP discharge.

And the Pieman:

- Waters are characterised by elevated levels of some heavy metals.
- The observed biological patterns around the Stitt discharge area in Lake Pieman are currently not of major ecological significance.

\(^{12}\text{DPEMP Appendix L, op. cit.}\)
• There was both sufficient benthic fauna and algal biomass to allow future detection of any effect from the proposed WWTP discharge to the Stitt River and on the lake shore ecosystem.

AMP initial data set

The key points drawn from TasWater’s initial eight month data set were that:

• Results for most measured parameters compared favourably with draft water quality objectives (WQOs) issued for the Stitt River by the EPA Division.
• All monitoring locations were deemed suitable for the purposes of ongoing water sampling and testing.
• Some forms of nitrogen and phosphorous and all heavy metals were at or higher than ANZECC stressor or toxicant levels at all monitoring locations.
• The testing regime could move to monthly for all parameters aside from metals (quarterly).
• Accepted Modern Technology (AMT) discharge limits as detailed in Table 1 (Table 5, Section 2.3 of the DPEMP) below should be adopted for WWTP design.

Table 1 – AMT Tasmania WWTP Effluent Quality Limits into Fresh Water

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Median (50%ile)</th>
<th>90%ile</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>mg/L</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Non-Filterable Residue</td>
<td>mg/L</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Thermotolerant Coliforms</td>
<td>cfu/100mL</td>
<td>n/a</td>
<td>n/a</td>
<td>200</td>
</tr>
<tr>
<td>Oil and Grease</td>
<td>mg/L</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg N/L</td>
<td>7</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg N/L</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mgP/L</td>
<td>0.5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>pH</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>6.5 – 8.5</td>
</tr>
</tbody>
</table>

Ref: Table 1 “Emission Limit Guidelines for Sewage Treatment Plants that Discharge Pollutants into Fresh and Marine Waters”, DPIWE June 2001

Management measures

TasWater proposes to continue and complete water sampling and analysis as per its AMP for a total of 2 years, with quarterly updates to the submitted to the EPA for review.13 This measure is reflected in commitment 10 of the DPEMP.

Public and agency comment and responses

None.

Evaluation

Implementation of the AMP has allowed:

• Selection of suitable ongoing water monitoring locations (including a reference site), parameters and likely discharge limits.
• Further guidance as to the most applicable treatment technology for Rosebery wastewater and appropriateness of proposed outfall location.
• A determination concerning the applicability of AMT discharge limits for Rosebery WWTP.

13 January 2015 scheduled completion date.
A comparison between TasWater's water quality data and published PEVs and draft WQOs for the Stitt River and Lake Pieman.

Setting of AMT limits for the Rosebery WWTP is considered to reflect the draft WQOs for the Stitt River and therefore support TasWater in meeting the PEVs defined under the SPWQM. Compliance with the SPWQM and its defined PEVs provides assurance that environmental harm to the Stitt River, and Lake Pieman, from the WWTP is unlikely.

Completion of the 2 year AMP to further characterise the receiving environment and confirm applicability of the AMT discharge limits is required under condition M1. Implementation of the AMP is supported by the requirements under conditions M2, M3 and M5. Ongoing effluent and ambient monitoring of the WWTP are proposed and discussed next at Water quality impacts.

**Conclusions**

TasWater will be required to comply with the following standard (generic) conditions:

- **M1** Monitoring Requirements
- **M2** Dealing with samples obtained for monitoring
- **M3** Monitoring report and record keeping
- **M5** Flow monitoring equipment
6.2 Water quality impacts

**Description**

**Catchment and Influent Characterisation**

As discussed in Section 6.1 of the EAR, the proposed WWTP has been designed based on meeting AMT limits. These limits are considered appropriate to allow the WWTP to meet the PEVs for the Stitt River in the absence of WQOs. Designing the WWTP and its treatment process has required the characterisation of the catchment in terms of current inputs, any expected changes over the next 10 years and potential future development in the area as well as quantifying key pollutants and characterising seasonal, diurnal or other significant flow patterns.

The treatment plant process summary is detailed in Table 2 below (Table 6, Section 4 of the DPEMP Supplement), and a general WWTP arrangement and plan diagram is detailed in Figure 2 of the EAR. A detailed process flow diagram is detailed in Appendix U1 of the DPEMP.

**Table 2 – WWTP process summary**

<table>
<thead>
<tr>
<th>WWTP Component</th>
<th>Process functionality / deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Process</td>
<td>SBR (intermittent aeration, intermittent decanter)</td>
</tr>
</tbody>
</table>
| Proposed Effluent Quality | BOD: < 5 mg/L  
Turbidity: <15 NTU  
NFR / SS: < 10 mg/L  
Ecoli: < 10 cfu  
Disinfect: Validated 1 log virus removal  
P: Dosing with poly-alum or similar  
N: Biological removal (note temperature dependent)  
Conductivity: No change |
| Headworks              | Inlet screening and grit removal. 2                                                               |
| Biological Treatment   | Controlled SBR:  
* 1 tank – Bio Reactor 1  
* 2 aerator/mixers – 15 kW each  
Decant Storage – 1 tank 1 |
| Nutrient Treatment     | P: Dosing with poly-alum or similar  
N: Biological removal in SBR |
| Tertiary Treatment     | Screen filter and multi-media (MM) filters                                                         |
| Disinfection           | UV                                                                                                 |
| pH                     | V-belt sludge unit into a Spirotainer 2                                                            |
| Plant Footprint        | Compact – dimensions not provided                                                                 |
| Treatment Flow Range   | Can handle proposed range – Transferred influent maximum flow capacity from main pump station 50 l/sec with 32 l/sec full treatment and 15 l/sec primary treated then bypassed. |
| Control system         | Complete SCADA and PLC control with remote Telstra 3G access.                                      |

Notes:

1 – Tanks are proposed to be steel based on asset life (50 years) and whole of life costing consideration.
2 – TW have detailed these as required for operational needs.

According to the DPEMP, the town of Rosebery has a population of approximately 1,032 with 704 rateable properties connected to the sewer network. No growth is expected across the catchment for the life of the new WWTP.

The Rosebery sewerage catchments are subject to extreme infiltration due to the high regional rainfall, and condition of the sewer infrastructure. In May 2013 flow meters were installed in the 3...
sewage pump stations rising mains that currently service Rosebery (Park Road, Sterling Valley and Dalmeny Estate), and ultrasonic levels sensors and V-notch weirs in the emergency storage holding tanks located at the sewage pump stations. These were installed to confirm the extent of inflow and infiltration (I/I) across the catchment as well as determine the capacity of the existing infrastructure.

Remodelling of the existing delivery network and pump stations were undertaken by TasWater based on this flow meter and overflow tank information to determine the following:

- Confirm average and peak dry weather flows (ADWF and PDWF) for treatment at the new WWTP,
- Expected peak wet weather flows (PWWF) be treated at the new WWTP, and what overflows are likely to the environment,
- Design a future I/I reduction program within the existing sewerage network.

Analysis of the data between 26th March and 6th August 2013 highlighted the following information relating to sewage flows across the network at the SPS level:

- Park Road SPS overflowed 13 times,
- Sterling Valley SPS overflowed 12 times,
- Dalmeny Estate SPS overflowed 3 times,
- Overflows only occurred when rainfall at Rosebery (Gepp St Station 97089) exceeded 32mm of rain within the previous 7 days, or when more than 24mm occurred within the previous 24 hours.
- A majority of overflow volumes were extremely small and for a short duration only.

Sampling conducted for the purposes of influent characterisation is detailed in *Rosebery RFP Influent Data Analysis and Design Parameters* (Appendix B of the DPEMP). It provides details on flow rates, influent quality and temperature.

The TasWater SCADA sampling program collected the following raw sewage temperatures at Park Road SPS from May to August 2013:

1. Median (50%ile) temperature 11.2°C
2. Minimum 8.6°C
3. Maximum 16.5°C

According to Section 2.2.3 of the DPEMP, these temperatures were considered within the expected range for sewage and were not expected to cause issues in relation to sewage treatment. TasWater also noted that sewage temperature is expected to be lower when it reaches the WWTP inlet works, as the sewage must be stored in the Park Street SPS for a time, and then the 1,200 metre long rising main that will pump directly into the WWTP.

According to Section 2.2.2 of the DPEMP, influent quality testing found no major variances in the range of the quality of the influent between long and short term sampling programs. This was attributed to the influent being mostly domestic sewage. TasWater has no current trade waste agreements within Rosebery and no major industries are connected to the sewerage system. A summary of a specific TasWater effluent quality sampling program at Sterling Valley, Park Road, and Baillieu Street in Rosebery between October 2010 and June 2012 (396 samples) is provided in Table 4 below (Table 3, Section 2.3 of the DPEMP) and detailed in Appendix E of the DPEMP.

**Table 4 – Rosebery Influent Data 2010 to 2012 (AMT Analytes only)**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Units</th>
<th>Median (50%ile)</th>
<th>Minimum</th>
<th>90%ile</th>
<th>Maximum</th>
</tr>
</thead>
</table>

Table 3 – Existing Rosebery Influent Flow Data

<table>
<thead>
<tr>
<th>Description</th>
<th>Rate</th>
<th>How Determined</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADWF</td>
<td>2.8 l/s</td>
<td>Calculated</td>
<td>Tenement based excluding infiltration into the network</td>
</tr>
<tr>
<td>Wet Weather Flow from SPS</td>
<td>1.6 ML/d</td>
<td>Estimated</td>
<td>This equated to 18.5 l/s over 24 hours</td>
</tr>
<tr>
<td>ADF</td>
<td>0.41 ML/day</td>
<td>Estimated</td>
<td>This equated to 4.7 l/s over 24 hours</td>
</tr>
<tr>
<td>Minimum ADF</td>
<td>1.5 l/s</td>
<td>Observed</td>
<td>Measured once on site during summer dry weather.</td>
</tr>
<tr>
<td>Current maximum pump deliverable capacity</td>
<td>3.2 ML/day</td>
<td>Estimated</td>
<td>This equated to 37.0 l/s over 24 hours</td>
</tr>
<tr>
<td>Proposed maximum pump deliverable capacity to WWTP</td>
<td>47.0 l/s</td>
<td>Design – Park Road SPS upgrade</td>
<td>This equates 4.06 ML/day over 24 hours</td>
</tr>
</tbody>
</table>

Mixing Zone Assessment

The outfall from the WWTP is proposed to discharge to the Stitt River. Under Section 20.1 of the State Policy on Water Quality Management 1997 (SPWQM), a mixing zone around the point of discharge can be defined if it is “not reasonable or practical to reduce the levels of pollutants in an emission to the levels which would be required to achieve the water quality objectives for the receiving waters at the point of discharge.” Under Section 20.3(f) of the SPWQM, “mixing zones in rivers, streams and estuaries should be set having regard to the effects of the mixing zone under low flow conditions.”

According to Section 4.1.5 of the DPEMP, in June 2013, TasWater engaged Macquarie Franklin to undertake flow monitoring in the Stitt River. Their report titled “Stitt River Stream Flows Proposed Rosebery STP Outfall” is provided in Appendix K3 of the DPEMP. This flow monitoring at 15 minute intervals was specifically undertaken to:

a) Quantify the impact of significant water usage out of the river from MMG for mine operations since this occurs downstream of the permanent Rosebery monitoring station; and

b) Determine the minimum flow conditions expected along the Stitt River at the proposed outfall location.

Section 6 of the DPEMP Supplement advises that TasWater have now taken ownership of the MMG pump station, which currently extracts water downstream of the permanent Stitt River
monitoring station. TasWater are currently replacing the pumps with smaller ones which will reduce the pump station extraction rate from approximately 60 l/s to approximately 5 l/s, resulting in greater “mixing zone” dilution ratios under low flow conditions.

An assessment of the Stitt River flow rates against the effluent discharge rates calculated for the WWTP (based on likely influent rates) found that for a majority of the time, a dilution of 1 in 80 is likely to be achieved at the Stitt River outfall and therefore a suitable immediate dilution is expected to be achieved. Low flow events were likely to present the greatest risk to water quality but TasWater consider these to be rare events based on current mean rainfall and Stitt River flow data.

This analysis was supported by a GHD report commissioned by TasWater which investigated the capacity of the Stitt River to mix effluent treated to AMT standard as described by the Emission Limit Guidelines for Sewage Treatment Plants (EPA 2001). A copy of this report entitled ‘Stitt River Mixing Assessment’ is included as Appendix G of the DPEMP Supplement. The report found that based on the average Stitt River flow rate (including high flow events) an acceptable dilution could be achieved, as long as the effluent could be stored and released in a controlled manner in concert with river flow.

TasWater commissioned SKM to provide further assessment of the size of the expected mixing zone under 7Q10 flow conditions to achieve nutrient and toxicant mixing to background concentrations, draft WQOs and predefined guideline trigger values. A copy of this report entitled ‘Stitt River Mixing Zone Assessment’ is included in Appendix O of the DPEMP.

Supplementary information in relation to the expected toxicant mixing zone was received in Section 7 of the DPEMP Supplement. The mixing zone assessment concluded that the size of the nutrient mixing zone based on 90th percentile effluent concentrations under 7Q10 flow conditions extends about 2 km downstream of the outfall to the confluence with Lake Pieman. A mixing zone is not set on nutrient concentrations that may have potential eutrophication effects, but rather biological indicators which are monitored to assess environmental impact. TasWater considered concentrations of toxicants from the effluent well below chronic or acute toxicity levels and after initial dilution would not require a mixing zone to be set: a conclusion also reached by the EPA Water Specialist from the information provided.

To further assess the environmental risks of discharge into the Stitt River during low flow events SKM were engaged by TasWater to assess the water quality threats to fish, macro-invertebrate and algal communities, as well as to public health or recreational values. The risk assignment was based on the percentage of time environmental quality objectives were expected to be exceeded, based on dilution from natural river flows under average annual, average summer and minimum flow conditions, and the threat that this posed to environmental values. The risk assessment (Appendix O3 of the DPEMP) considered that the overall risk to environmental values in Stitt River is low due to mitigating natural factors such as light attenuation from high water colour, variable and frequent high flows and cool water temperatures.

Management measures

Managing water quality impacts will involve management of the amount and quality of wastewater entering the WWTP from the SPSs, the design and operation of the WWTP, and verifying the effluent discharging into the Stitt River has met emission limits and is not causing significant adverse impacts to the receiving waters.

TasWater has designed the WWTP based on the influent flow rates data and meeting the AMT limits. The following commitments relate to TasWater meeting AMT limits:

C10: Rosebery WWTP approved Ambient Monitoring Program is ongoing and will be continued for a total of 2 years, with quarterly updates provided to the EPA submitted and reviewed by the EPA.

C30: Monitor and review WWTP influent and effluent water quality parameters and monitor WWTP performance.
**C31:** Monitor and review receiving water parameters along the Stitt River annually.

As detailed in Section 4.1.5 of the DPEMP, low flow events are likely to present the greatest risk to water quality during operation of the WWTP. TasWater propose to manage low flow events through the incorporation of a 1 ML effluent balance tank into the WWTP design (commitment 4).

Section 6 of the DPEMP Supplement states that this tank will be beneficially utilised to minimise the flow discharged into the Stitt River during extreme dry weather when low flow conditions occur. Modelling and design and an environmental risk analysis (refer Appendix O3 and the DPEMP Supplement Section 6) confirms that a 1.0 ML balance/storage tank will ensure outfall discharge will not present an elevated risk to average summer conditions during the 7Q10 flow regime (the lowest 7 day flow rate than can be expected in 10 years). This is based upon lowest flow record over 23 years of historical flow recording in the Stitt River. It is estimated the 1.0 ML capacity tank should mitigate between 6 to 7 days holding capacity against the 7Q10 flow condition (using a low extreme average receiving waters flow rate of 69 l/s) before normal discharge must then occur.

According to Section 4.9 of the DPEMP, overflow management across the Rosebery sewerage scheme will be managed at several locations, and through the implementation of an ongoing inflow and infiltration program within the reticulation network (commitment 22). According to commitment 3, the inlet works will be bunded to ensure any overflow into the WWTP is contained within the plant site. The bunded area shall include a sump and return pump, as well as alternative access for a sucker truck to capture larger spills.

The WWTP is being designed to treat an ADF of 0.41 ML/day (2.8 l/s), and peak inflows of 32 L/s rather than fully treat the maximum delivery from the network which is a PWWF of 47 L/s. During peak inflows 32 L/s will be fully treated by the plant, with the remaining 15 L/s being primary treated then bypassed around the remaining plant. Bypass frequency is expected to reduce over time with implementation of the Inflow and Infiltration (I/I) program in the sewerage delivery network.

According to the DPEMP Supplement (section 14) the outfall pipe downstream of the balance tank will incorporate the following features:

1. Valve arrangement that maintains the minimum discharge flows when 7Q10 flows are measured along the Stitt River,
2. Variable valve that can discharge between zero and 60 l/s from the balance tank depending on the flow in the Stitt River.

Appendix H of the DPEMP provides an effluent discharge control philosophy and commitment 4 provides a commitment to operate this tank during high effluent flows generated from the WWTP and periods of low flow in the Stitt River.

**C4:** An effluent balance tank will be installed as part of the Rosebery WWTP to maximise disinfection and minimise effluent flow rates discharged from the plant into the Stitt River. This will be utilised when high effluent flows are generated from the WWTP and flows along the Stitt River are low eg during summer and other low rainfall periods.

The discharge will include a diffuser that will make effluent mix across the profile of the free flowing Stitt River. The diffuser will also be located in the river bed to minimise disruption to the natural flow along the river.

TasWater is actively undertaking an ongoing I/I reduction program in Rosebery which aims to minimise flows entering the sewerage network above the specified design PWWF. The ongoing implementation of this program forms commitment 22 of the DPEMP. Features of this program include:

- Data logging of SPS operations (flow, pump starts and stops, power consumptions etc), including at Park Road SPS where 100% of the wastewater will be pumped to the WWTP site during dry weather,
• Monitoring of existing SPS emergency storage overflows (see Section 4.9.3 for more details)
• Identifying known subcatchments across Rosebery with high I/I,
• Undertaking manhole inspections and replacing manhole lids or entire manhole in poor condition where I/I has been noted,
• CCTV key pipelines identified as old or damaged, and programing rehabilitation or replacement if found to be in poor condition,
• Undertaking smoke and dye testing of individual properties if these are suspected of having illegal connections to sewer,
• Liaise with West Coast Council to rectify any illegal stormwater connections from private properties to TW’s sewerage network.

Section 4.9.3 states that the existing SPSs will be retained as part of this project, however new pumps will be installed at all three SPSs to enable PWWFs to be directed to the new WWTP site along the pump station’s new rising main pipeline. The upgrade of pump capacity at the SPS’s forms commitment 33 of the DPEMP supplement. TasWater will also continue to remotely monitor all existing Rosebery SPSs to enable monitoring and reporting if any overflows from individual emergency storage structures (commitment 26).

Other commitments that are relevant to the management of water quality impacts from the WWTP are:

**C27:** A 3 month proof of performance requirement in the D&C tender documentation for the contractor to meet the required emission limit guidelines set down by the EPA for this WWTP.

**C28:** A detailed operations and maintenance manual for the Rosebery WWTP and discharge pipeline, including the following site specific issues, will be prepared:

- General plant operations
- Maintenance of the BPZ and FMBZ areas surrounding the WWTP site for fire protection purposes
- Operations and maintenance of all plant components to minimise odours
- Use of balance tank and discharge into the outfall pipeline and Stitt River

**C29:** Advise the EPA of any breaches of the permit, should these occur as per current notification and reporting standards.

**C23:** Install stand-alone generators at the two key sites within the Rosebery sewerage scheme to minimise impact from power failure. These sites are the Park Road SPS and at the WWTP site to enable pumping, treatment and disposal to occur. Alarms will be included in the SCADA system to monitor any power failures and highlight that a site inspection is required to assess the situation to enable a return to normal power as soon as possible.

**Public and agency comment and responses**

Hydro Tasmania, a referral agency for the proposal, provided a submission in relation to the DPEMP, stating that although they generally support the proposal, they had concerns that ‘the impact of the plant on the receiving waters in Lake Pieman has not been given due consideration’.

The response stated that: *We are concerned that nutrient enrichment in the Stitt River below the outfall may result in algal blooms in the upper reaches of Lake Pieman, as the report clearly identifies the mixing zone in the Stitt River is insufficient for the water quality in the Stitt River to be consistent with the Water Quality Objectives at the confluence with Lake Pieman. This risk is of*
particular concern during summer or periods when there are station outages at Bastyan Power Station.

Hydro Tas recommended that monitoring of water quality (nutrients and algal community) in the vicinity of where the Stitt River enters Lake Pieman [be undertaken] for the first 3 years post commissioning of the STP would enable the need for any risk mitigation measures identified in section 6.2 of the Environmental Risk Assessment to be assessed.

Hydro Tas also questioned whether the modelled 15L/s of raw effluent that will be discharged to the Stitt River on average 30 times per year, according to the Environmental Risk Assessment in Appendix O3, complies with the Discharge Limits to Fresh and Marine Waters.

In the DPEMP Supplement, TasWater advised that this matter is covered in the SKM bypass report which reads as follows. “The bypass scenario presents a low risk to ecological values (i.e. fish, macroinvertebrates, aquatic plants and in-stream habitat) (Figure 7). Nuisance plant growth and algal blooms are unlikely in response to nutrient enrichment in the bypass effluent because of the associated high flows in addition to the naturally high colour of the water and low water temperatures in Stitt River. The accumulation of nutrients in Lake Pieman is also low risk given it is also highly fluvial, with large and variable flows throughout the year. Ammonia levels are well below the toxicity trigger levels. Biochemical oxygen demand, oils and grease, and suspended solids concentrations are expected to be sufficiently diluted with the passing flows to be a low risk to ecological values.” TasWater have committed to appropriate monitoring at the confluence of the Stitt River and Lake Pieman to understand the ongoing potential risk of algal blooms (commitment 38) and an effluent plume verification study is also part of the approved AMP.

**Evaluation**

TasWater has completed an influent monitoring program to characterise likely flow rates, influent quality and temperature in the Rosebery catchment. This data has been utilised to design a WWTP to meet AMT limits. AMT limits were set as discharge limits for the WWTP during AMP development (see Section 6.1 of the EAR). AMT limits are considered to reflect the draft WQOs and allow the WWTP to meet the PEVs for the discharge waters of the Stitt River and Lake Pieman as defined under the SPWQM.

Compliance with the AMT limits is considered to minimise environmental risk to the Stitt River and Lake Pieman from discharged effluent and will be managed through requirements to meet the regulatory flow limits in condition Q1 and discharge limits set in conditions EF1 and EF2. Ensuring that the WWTP meets the AMT Limits will be managed through Monitoring Requirements detailed under permit condition M1 and supported by the requirements under conditions M2, M3, M4 and M5. The aquatic flora and fauna survey has demonstrated that the proposed monitoring locations, defined in Attachment 4 of the permit conditions have sufficient benthic fauna and algal biomass to detect any future effect from the proposed WWTP discharge to the Stitt River and Lake Pieman foreshore.

The Stitt River Mixing Zone Assessment undertaken by SKM (Appendix O of the DPEMP) and supplementary information received in Section 7 of the DPEMP Supplement demonstrate that the size of the expected toxicant mixing zone can be considered insignificant and designation of a formal mixing zone under section 20 of the SPWQM is not considered required. The assessments undertaken also demonstrated that, based on the Stitt River flow rates and calculated effluent discharge rates, acceptable dilution is likely to be achieved, except in low flow events.

Plume verification was proposed in the AMP and its implementation under condition M7, post commissioning of the WWTP, will confirm the actual effluent plume and allow adaptive management of the activity, including monitoring locations to ensure that any environmental nuisance or environmental harm is identified and suitably mitigated or managed. This study should satisfy Hydro Tasmania’s concerns delineating the movement of effluent from the WWTP and
determining if any impacts under potential flow conditions have the potential to cause impacts, including algal blooms in Lake Pieman.

Low flow events in the Stitt River are likely to present the greatest risk to water quality during operation of the WWTP and the highest potential for environmental harm or nuisance in the Stitt River or Lake Pieman. TasWater consider these to be rare events based on current mean rainfall and Stitt River flow data and propose to manage them through the incorporation of an effluent balance tank into the WWTP design which forms commitment 4 of the DPEMP. This design is considered appropriate for managing the risk of environmental harm associated with low receiving water flow events. To ensure that the balance tank is utilised appropriately, condition EF4 requires an effluent discharge of 1:80 to be maintained, unless otherwise approved by the Director. Correspondence from TasWater indicates that such an event is expected to occur once during summer based on 23 years of flow and rainfall data in the Rosebery catchment.

Influent characterisation of the Rosebery sewage catchment highlighted the extreme infiltration into the sewage network due to the high rainfall and condition of the current sewer infrastructure. TasWater has committed to bund the inlet works to ensure that inlet works overflow events are contained within the plant site as a contingency measure (commitment 3). High inflow events, which are expected to occur up to 30 times per year, with increased sewage flow caused by system inflow and infiltration due to wet weather will be managed through a bypass system. The augmented Park Road SPS will provide a peak flow rate to the WWTP of 47 l/s, of which 32 L/ flow rate will be fully treated by the plant to AMT standard, with the remaining 15 L/s being primary treated (screened) then bypassed around the remaining plant and discharged via the common outfall. The requirement for primary treatment of inflows in excess of 32 l/s will be managed through condition EF3. The limitation on the maximum inflow rate given by the bypass operation serves to protect the treatment capacity of the WWTP, as high hydraulic inflow rates would lead to “wash out” of biological media.

The Environmental Risk Assessment for Bypass Scenario undertaken by Jacobs SKM (Appendix O4 of the DPEMP) confirmed that because there is also a corresponding high flow along the Stitt River, there is still only a low risk to ecological values, nuisance plant growth and algal blooms in the receiving waters in using a bypass system. This report also considered that there would be a low to moderate risk to recreational users during bypass events because there is very limited recreational activity downstream of the outfall since the location of the outfall is remote and difficult to access.

The bypass system is therefore considered appropriate to manage high inflow events at the WWTP with a low risk of environmental harm from the discharge of primary treated water into the Stitt River. Bypass can only be implemented when flows are greater than 32 litres per second and primary treatment in the form is screening is required prior to discharge, as defined in condition EF3. Flow rates and each bypass event will be recorded with a requirement for quality sampling of bypass events in excess of 30 minutes duration, as required under conditions M1, M5 and M6. The surveillance of the discharge location required under condition OP4, will support management of any potential impacts of effluent discharge to the Stitt River on recreational users.

Reporting of biological and water quality monitoring under condition M1 and M3 and post commissioning reporting through conditions G9 and the ongoing Annual Environmental Review under condition G5 will allow for an adaptive management approach requiring additional management measures should impacts be detected. TasWater has also committed to advising the EPA of any breaches of the permit (commitment 29). Maintaining a Complaints Register, which will be imposed under condition G4, will also support the review of plant performance and compliance.

The general operation of the WWTP will be managed through an approved Operational Procedures Manual required under condition OP1. The systems and actions that are to be implemented in response to emergency events will be managed through the preparation and approval of a Contingency Management Plan required under condition OP2. Responding to incidents is required under condition G8.
According to Section 2.1.2 of the DPEMP the flow data collected between March and August 2013 from the 3 SPS will also be used to develop a targeted I/I program across the Rosebery sewerage reticulation network. New gravity and rising mains will be constructed to connect the 3 existing SPS to the new WWTP (see Appendix A3 of the DPEMP for details) and all 3 SPS will be upgraded to improve pump capacity.

The improvements to off-site infrastructure that support the operation of the WWTP and implementation of an I/I Program to reduce inflows to the WWTP and sewage overflow events at the SPS locations are considered appropriate to manage potential overflow risks at the WWTP and the greater Rosebery sewerage reticulation network. Consolidation of the 3 SPS overflow locations to a single overflow location at the WWTP will be achieved by provision of increased total pump capacity from a combined 37 l/s to 47 l/s post upgrades. Whereas the maximum full treatment capacity of 32 l/s for the new WWTP is below the wastewater treatment rate of 37 l/s provided by the previous MMG setup, the decrease in the full treatment rate is considered offset by the improved wastewater treatment process, provision of a better wastewater overflow location away from inhabited areas and provision of primary treatment for bypassed flows as required under condition EF3 above 32 l/s. Consolidation of overflow locations is in accordance with the requirements of clauses 15.2 and 28.3 of the SPWQM.

The implementation of an I/I Program to further reduce overflow frequencies from both the WWTP bypass location and the retained 3 SPSP overflow locations is required through the development and approval of an Inflow and Infiltration Management Plan under condition OP3 of the permit. Monitoring of the influent as well as the frequency of bypass operation and sampling of bypass quality required under conditions M1 and M6 will provide a measure of success of the implementation of I/I reduction.

**Conclusions**

TasWater will be required to comply with relevant DPEMP commitments detailed in the ‘Evaluation’ section.

TasWater will be required to comply with the following standard (generic) conditions:

Q1 Regulatory limits
G4 Complaints Register
G5 Annual Environmental Review
G6 Commitments encompassing commitment 3, 4 and 29
G7 Notification prior to commencement
G8 Incident Response
M1 Monitoring Requirements
M2 Dealing with samples obtained for monitoring
M3 Monitoring report and record keeping
M4 Signage of monitoring points
M5 Flow monitoring equipment
OP1 Operational Procedures Manual
OP2 Contingency Management
OP3 Inflow and Infiltration (I/I) Management Plan
OP4 Signage of discharge location

TasWater will be required to comply with the following site-specific conditions:
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G9</td>
<td>Post-Commissioning Report</td>
</tr>
<tr>
<td>EF1</td>
<td>Effluent discharge locations</td>
</tr>
<tr>
<td>EF2</td>
<td>Effluent quality limits for discharge to the Stitt River</td>
</tr>
<tr>
<td>EF3</td>
<td>Requirements for Bypass</td>
</tr>
<tr>
<td>EF4</td>
<td>Discharge Dilution</td>
</tr>
<tr>
<td>M6</td>
<td>Event recorder for bypass</td>
</tr>
<tr>
<td>M7</td>
<td>Effluent Plume Verification Study</td>
</tr>
</tbody>
</table>
6.3 Stitt River outfall construction impacts

Description

Treated wastewater from the proposed WWTP will pass (under gravity) along a 120 metre long pipeline before discharge via a steep, short section (includes outfall) to the Stitt River. The outfall’s nominated location occurs about 300m downstream of Stitt Falls.

TasWater’s PSGs required it to investigate and evaluate the wastewater pipeline’s possible construction impacts, especially on natural, heritage and groundwater values. As part of this exercise, TasWater was also required to identify and discuss any land stability risks as well as risks to water quality and other values during construction. TasWater submitted several reports that aim to address these (and other guideline) requirements, including:

- Ecological assessment of proposed wastewater treatment facility, Stitt River, Rosebery Tasmania (DPEMP, Appendix P).
- Geotechnical investigation and landslide risk assessment (DPEMP, Appendix Q1).
- Aboriginal heritage survey (DPEMP, Appendix G).
- Historic heritage desktop assessment (DPEMP, Appendix R).

Natural values

Briefly, the intended pipeline will pass through dense forest comprising the following vegetation types:

- *Nothofagus*-Atherosperma rainforest
- *Leptospermum lanigerum-Melaleuca squarrosa* swamp forest
- *Eucalyptus obliqua* forest over rainforest
- *Eucalyptus nitida* forest over *Leptospermum*

This represents potential habitat for the Tasmanian devil, spotted-tailed quoll, grey goshawk and masked owl. About two hectares of such vegetation is slated for removal, which includes the pipeline easement. The ecological assessment did not identify any ecological values of high conservation significance requiring specific management under local, State and Commonwealth government legislation and other policy instruments.

According to section 4.7 of the DPEMP, clearing of the WWTP site, the outfall corridor and the access road were undertaken in accordance with a Forest Practice Plan (FPP). This Plan is included in Appendix C of the DPEMP.

Land stability and groundwater

The intended pipeline route typically exhibits slope angles between 25° and 38° and undulates in the steeper sections with evidence of several shallow landslide features. In addition, the proposed alignment crosses two minor drainage depressions that show evidence of land instability with shallow landslide features. Briefly, the geotechnical investigation and landslide risk assessment found that while the proposed alignment did not meet best practice concerning land stability, it did take advantage of more gentle and stable slopes than the adjacent surrounding area. The assessment concluded that the intended alignment was acceptable.

In terms of qualitative land slip risks, the assessment rated the possibility of large scale failure as low while small to medium scale failure was rated as moderate. The assessment noted that moderate risk may be tolerated in particular instances provided that planning and building controls are able to reduce this risk to low.
In terms of groundwater; no groundwater was encountered during test pitting over the intended alignment (max depth about 1.5m)\(^ {14}\). Some groundwater seepage is anticipated in the drainage depressions described above.

**Heritage**

With reference to European heritage, particularly mining and track development, the desktop historic heritage assessment concluded that the likelihood of significant historic heritage sites or values being present in the proposed development area (including pipeline alignment) was low to negligible.

In relation to Aboriginal heritage, both the desktop study and field survey did not identify or locate any sites listed on the TASI database or any materials that could be regarded as Aboriginal relics or artefacts within the intended development area (including pipeline alignment). A report commissioned by TasWater in 2012 found no known Aboriginal heritage sites in the Rosebery area\(^ {15}\).

**Management measures**

TasWater has nominated the following management measures with respect to construction of the pipeline and outfall

**C2:** Design and construct the outfall pipeline and outlet into the Stitt River to ensure minimal impact on the surrounding environment.

**C11:** Contractors will prepare a detailed Construction Environmental Management Plan (CEMP) outlining mitigation measures for a range of potential environmental impacts at the WWTP site and along the outfall pipeline into the Stitt River.

**C21:** TasWater will advise the Forest Practices Board if any wedge tail eagle nests are found during clearing as required as part of the approved Forests Practices Plan for clearing the site.

**C24:** Comply with the *Aboriginal Relics Act 1975* and any associated local government legislation during the site works, and if during works any Aboriginal cultural heritage material are found eg shells or shell fragments, rock materials (eg chert, hornfels, quarts, and quartzite, human remains or bone fragments not identified as animal bones), TasWater will cease work and contact Aboriginal Heritage Tasmania (AHT).

**C25:** If any significant historic heritage sites are located during construction, work will cease until the site has been assessed by an appropriately qualified heritage practitioner and a management strategy developed. Both Heritage Tasmania and West Coast Council (WCC) will be notified of any unanticipated discoveries.

**Public and agency comment and responses**

The Policy and Conservation Assessment Branch (PCAB) of DPIPWE reviewed the final DPEMP in relation to natural values, biodiversity and weeds and diseases and concluded that based on the information provided in the DPEMP, that indicated no threatened flora or fauna were found on the property and that a comprehensive plan is in place to manage weeds and diseases, they had no further issues with the development.

\(^ {14}\) Average footing depth is expected to be about 1.5m.

\(^ {15}\) DPEMP Appendix G *Brief on the on the survey findings on the proposed improvement to the infrastructure of the existing Waste Water Treatment Plant at Rosebery*. 
**Evaluation**

Based on the information provided in the DPEMP, the clearance of vegetation for the outfall corridor has already occurred under an approved FPP.

The likelihood of impacts from any further works associated with the outfall construction is expected to be low when undertaken in accordance with commitment 2 and managed in accordance with a Construction Environmental Management Plan (CEMP) as required under permit condition CN1. Further management of outfall construction works is required under Condition CN3 which requires TasWater to notify to the Director of commencement and duration of construction works for the outfall and dictates spoil management and rehabilitation requirements to ensure impacts do not occur during construction. Hours of construction activities will be restricted under condition CN2 to limit potential impacts, particularly noise, on nearby sensitive receptors.

Both the Aboriginal and European heritage studies conducted for the site found no heritage values in the area of construction and operation. Management of these issues will be dictated under relevant legislation and not considered further in the assessment.

**Conclusions**

TasWater will be required to comply with relevant DPEMP commitments detailed in the ‘Evaluation’ section above.

TasWater will be required to comply with the following standard (generic) conditions:

- **G6** Commitments encompassing commitment 2
- **CN1** Construction Environmental Management Plan
- **CN2** Operating Hours – Construction

TasWater will be required to comply with the following site-specific conditions:

- **CN3** Outfall Construction
6.4 Air emissions

Description

From wastewater treatment plant

The proposed boundary of the site on which the WWTP will be constructed and operated lies within 200m of the nearest sensitive receptors (residences) to the southeast in Shackle St, Rosebery. Two residences lie within the attenuation distance nominated in the West Coast Interim Planning Scheme 2013 for a mechanical/biological sewage treatment plant, namely 200m. Other nearby sensitive receptors include Rosebery’s recreation oval at about 200m, also to the southeast, and land zoned Rural Resources east and south of the intended WWTP site. A WWTP (utility) is a permitted use within the Rural Resources zone. Figure 2-3 of Appendix N\textsuperscript{16}

The proposed WWTP is a sequencing batch reactor type, its main components being:

- Inlet works
- Various tanks and bins
- Sludge belt press
- Screen and multi-media filter
- Mixers, aerators and blowers

Disinfection (UV treatment) is also intended as well as an odour control unit for air to be collected and treated in a biological trickle filter followed by an activated carbon filter.

Due to the proposed WWTP’s close proximity to residential neighbours, TasWater was required\textsuperscript{17} to model how air emissions might be locally dispersed under a number of modelling scenarios. Plant upset conditions also needed consideration. Modelling results and odour mitigation and control measures are discussed in the DPEMP, Appendix N - Air quality impact assessment.

Briefly, three scenarios were modelled, each with escalating levels of odour control. No odour control was applied for scenario one. Of the three scenarios, only the situation where the most extensive control measures were applied was predicted to comply with the design criteria of two odour units (2OU), 100 percentile concentration at or beyond the boundary of the WWTP.\textsuperscript{18} Control measures primarily comprised covering, extracting and removing (by scrubbing or filtering) odorous gases followed by stack discharge.

Several plant upset conditions (e.g. electricity disruption) were also considered in terms of likelihood, consequence and controls.

TasWater concluded that under typical operating conditions\textsuperscript{19} and applying all recommended odour controls, air emissions from the WWTP were unlikely to cause environmental nuisance beyond the boundary of the site.

Other air emissions

Aside from emissions to air from mechanical and biological treatment of wastewater, there are likely to be air emissions of a transient nature during construction (e.g. dust). TasWater anticipates that nearby sensitive receptors will not be measurably affected by air emissions such as dust during site preparatory and WWTP installation works.

\textsuperscript{16} Appendix N: MWH (October 2013), Rosebery WWTP Air Quality Impact Assessment.
\textsuperscript{17} Part 4, Project Specific Guidelines.
\textsuperscript{18} Schedule 3 (Odour criteria), Tasmanian Air Environment Protection Policy (Air Quality) 2004.
\textsuperscript{19} Includes a consideration of climatic conditions.
**Management measures**

TasWater intends to cover, extract and vent (via a common stack) most of the open vessels and other WWTP components typically exposed to atmosphere, such as flow splitter, inlet works and sludge handling building. This arrangement is reflected in the following commitments:

**C5:** TasWater will cover and ventilate the following odour emission sources as part of the WWTP design:
- Inlet works (i.e. screens and channels, and screening bin)
- Sludge holding tank
- V-fold belt press unit (but not the belt press building air)
- Spirotainer

**C6:** A point source stack discharge at least 10 metres high with suitable odour treatment such as a 2 stage biotrickling filter / activated carbon system or wet chemical scrubber.

With reference to plant upset events (e.g. electricity failure, impairment of the biological treatment system) and odour control: TasWater commits to installing stand-alone generators at the two key sites within the Rosebery sewerage scheme to minimise impact from electricity failure. These sites will be the Park Road SPS and at the WWTP site to enable pumping, treatment and disposal to occur. Alarms will be included in the SCADA system to monitor any power failures and highlight that a site inspection is required to assess the situation to enable a return to normal power as soon as possible (commitment 23).

Section 4.2 of the DPEMP also details under item 12 that the odour control unit will be designed to eliminate the risk of equipment failure and allow yearly maintenance to be undertaken, which minimises residual odours whilst maintenance is being carried out.

A Construction and Environmental Management Plan (CEMP) that will contain among other things procedures and performance requirements with respect to air emissions likely to occur during site preparatory and installation works also forms commitment 11.

The following commitments also relate to management of odours during operation of the WWTP:

**C26:** TasWater will continue to remotely monitor all existing Rosebery SPS’s to enable monitoring and reporting if any overflows from individual emergency storage structures.

**C28:** A detailed operations and maintenance manuals the Rosebery WWTP and discharge pipeline, including the following site specific issues, will be prepared:
- General plant operations
- Maintenance of the BPZ and FMBZ areas surrounding the WWTP site for fire protection purposes
- Operations and maintenance of all plant components to minimise odours
- Use of balance tank and discharge into the outfall pipeline and Stitt River

**C30:** Monitor and review WWTP influent and effluent water quality parameters and monitor WWTP performance.

As part of the DPEMP Supplement, TasWater also committed to a post commissioning odour sampling and assessment to verify the air emission modelling for the WWTP (commitment 36).
Public and agency comment and responses

The EPA Division’s Senior Scientific Officer (Air Modelling) reviewed TasWater’s Air quality impact assessment\(^20\) and concluded that it was very thorough and of a high standard. It was agreed that of the three modelling scenarios presented, only scenario three (‘full odour control’) was likely to achieve the required level of odour abatement and allow compliance with a design criteria of 20U, 100 percentile concentration at or beyond the boundary of the WWTP.

TasWater was also requested to provide:

- Additional qualitative and quantitative detail about plant upset conditions, such as:
  - Type of upset
  - Likely cause(s)
  - Frequency of upset
  - Duration of elevated emission
  - Potential increase to odour emission rate (OER)

- The grid maximum concentration occurring beyond the boundary of the facility. This was deemed useful particularly for scenarios one and two where the 2OU contour extends beyond the WWTP boundary. It was also considered relevant for scenario three since it would help demonstrate the decrease in odour emission that occurred in this scenario.

- Greater technical detail about the WWTP’s proposed ‘odour control facility’ (e.g. biotrickling filter).

TasWater satisfactorily addressed these matters in its final DPEMP. The EPA Division’s Senior Scientific Officer (Air Modelling) has recommended an odour survey post-commissioning to confirm the findings of the modelling undertaken in the DPEMP and implement any further mitigation or management if required.

Evaluation

TasWater modelled how air emissions from the WWTP might be dispersed under a number of scenarios. Modelling methodology was developed with reference to the PSGs and a draft Air quality impact assessment was reviewed by the EPA Division’s Air Unit prior to advertising of the development application. The modelling approach was considered robust, conservative and credible. The Air quality impact assessment is included in the DPEMP as Appendix N.

Of the three modelled scenarios, the results show that air emissions are likely to comply with a design criteria of 20U, 100 percentile concentration at or beyond the boundary of the WWTP only when ‘full odour control’ is instituted (scenario three). Covering, extracting and venting through a common stack\(^21\) most components of the WWTP is supported and considered essential in order to minimise potential for environmental nuisance at the nearest sensitive receptors (i.e. residents in Shackle St). These design elements are commitment to by TasWater in the DPEMP (C5 and C6). The DPEMP also dictates that TasWater will ensure that odour control equipment such as biotrickling filter are appropriately sized and that suitable redundancy for other major pieces of equipment, such as extraction fans, is provided and a regime of preventative (planned) maintenance will be implemented. These actions are therefore considered appropriate to prevent odour emissions impacting on sensitive receptors.

The development of an Environmental Management Plan for the operational phase of the WWTP will be required under condition G9. The odour survey and subsequent odour assessment report under conditions A2 and A3, respectively, will compare actual modelled odour emissions against emission rates used as input to the atmospheric dispersion modelling conducted for the DPEMP. This will then allow an assessment as to whether odour emissions are likely to cause

\(^20\) DPEMP, Appendix N, Air quality impact assessment.

\(^21\) After scrubbing/ filtering.
environmental nuisance beyond the boundary of the Land. Atmospheric dispersion modelling will be required under condition A4 to ensure the WWTP meets the 2OU limits at the site boundary and where a breach or breaches are identified, the proposed remedial action proposed.

Odour complaints will be recorded as required under condition G4 and will be required to be reported annually as part of the Annual Environmental Review required under condition G5.

Plant upsets

The most likely disruptions, such as electricity failure and impairment of the biological treatment process, have been examined. It is also accepted that these disruptions are likely to be rare, of short duration and unlikely to unreasonably affect nearby sensitive receptors. The exception to this (in terms of duration and potential impact) may be retardation of the biological treatment process, which may require more than several days to address.

The continued remote monitoring of all existing Rosebery SPS’s to enable monitoring and reporting if any overflows from individual emergency storage structures, as detailed in commitment 26 of the DPEMP, will support the management of plant upsets through the alerting of plant operators to issues offsite that may impact the operation of the WWTP.

The management of plant upsets will be supported through the implementation of an approved Operational Procedures Manuals and a Contingency Management Plan required under conditions OP1 and OP2, respectively.

Management of odour complaints during operation will be supported through the requirements to maintain a complaints register under condition G4 and to implement an approved Operational Procedures Manual under condition OP1. The requirement to manage and prevent odorous gases causing environmental nuisance beyond the boundary of the WWTP is reflected in condition A1.

Maintaining operating parameters within optimal bounds will also help mitigate and minimise treatment disruptions and therefore the opportunity for adverse odour impacts will be managed in accordance with conditions dictated under Section 6.2 Water Quality Impacts.

The review of the effectiveness of the WWTP process to manage odour issues, and consider improvements, are provided in the requirement prepare and submit an Environment Management Plan – Operations post-commissioning as required under condition G9 and on-going review through the Annual Environmental Review required under condition G5.

Other air emissions

With reference to other possible air emissions, there is the potential for dust emissions during construction of the WWTP. These are likely to be transient in nature, largely restricted to the proposed WWTP site (including pipeline corridor) and unlikely to be objectionable to nearby sensitive receptors. Implementation of an approved CEMP required under condition CN1 which includes air emission management, should limit the potential for environmental nuisance beyond the WWTP boundary. Dust will also be managed on-site during construction through the requirements of condition CN3.

Conclusions

TasWater will be required to comply with the relevant DPEMP commitments detailed in the ‘Evaluation’ Section above.

TasWater will be required to comply with the following standard (generic) conditions:

G4 Complaints Register
G5 Annual Environmental Review
G6 Commitments encompassing commitment 26
CN1 Construction Environmental Management Plan
CN3 Control of dust emissions during construction
A1 Odour management
A2 Odour survey
A3 Odour survey report
A4 Atmospheric dispersion modelling
M1 Monitoring Requirements
OP1 Operational Procedures Manual
OP2 Contingency Management

TasWater should be required to comply with the following site-specific conditions:
G9 Post-Commissioning Report
7 Other issues

In addition to the key issues, the following environmental issues are considered relevant to the proposal and have been evaluated in Appendix 1.

1. Noise Emissions
2. Waste Management
3. Dangerous Goods and Environmentally Hazardous Materials
4. Biodiversity and Natural Values
5. Weed and Disease Management
6. Traffic Impacts
7. Greenhouse Gases and Ozone Depleting Substances
8. Heritage
9. Socio-Economic Issues
10. Infrastructure and offsite ancillary facilities
11. Cumulative and interactive impacts
12. Decommissioning and Rehabilitation
8 Report conclusions

This assessment has been based upon the information provided by TasWater in the permit application, DPEMP, DPEMP Supplement and in correspondence and discussion between the EPA Division and TasWater.

This assessment has incorporated specialist advice provided by EPA Division scientific specialists and regulatory staff, other Divisions of DPIPWE and other government agencies.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal; and
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles.

It is concluded that the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 8847 appended to this report are imposed and duly complied with, including commitments made by TasWater in the DPEMP and DPEMP Supplement.

Report approval

Environmental Assessment Report and conclusions, including permit conditions, adopted:

Alex Schaap
Director, Environment Protection Authority

Date: 04 NOV 2014
9 References

TasWater, *TasWater Rosebery Wastewater Treatment Plant and Discharge, Development Proposal & Environmental Management Plan (DPEMP)* (dated 12 June 2014)

*TasWater Rosebery Wastewater Treatment Plant and Discharge, Development Proposal & Environmental Management Plan (DPEMP) Supplement* (undated; received by EPA Board on 18 September 2014)
10 Appendices

Appendix 1  Assessment of other issues
Appendix 2  Summary of public and agency submissions
Appendix 3  Permit conditions includes Attachment 3 - DPEMP commitments
Appendix 1  Assessment of other issues
### Issue 1: Noise emissions

#### Description of potential impacts

Noise emissions from construction and operation of the WWTP may impact on nearby sensitive receptors, including residences along Shackle Street and Chester Avenue, located 165m to the east and 255m to the south of the WWTP, respectively.

During construction noise will be generated during construction and is detailed as follows:
- Excavation for plant foundations and pipeline trenches,
- Vehicle and construction plant,
- Installation of WWTP plant components.

Site clearing has already been completed in December 2013 and January 2014 under an approved Forest Practices Plan for the site.

Noise generation is expected during ongoing operations as follows:
- Inlet works
- Plant operations – pumps, aeration, mixers
- Sludge removal operations (Truck movements)

Factor UTB provided the following information as detailed in Table 15 of the DPEMP, of the specifics of the WWTP in relation to likely noise sources and emission levels:

<table>
<thead>
<tr>
<th>Noise Source</th>
<th>Emission Level (dBA) and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet works</td>
<td>Approximately 75 dBA Note – never measure in isolation, but estimated based on allowing for noise from sprays, water splashing, discharge from screenings compactor</td>
</tr>
<tr>
<td>Blowers and Aeration pipework</td>
<td>Approximately 80dBA</td>
</tr>
<tr>
<td>General</td>
<td>Expect 50dBA 6 metres outside plant fence</td>
</tr>
<tr>
<td></td>
<td>NOTE – Factor UTB use aerator silencers so pumps are the noisiest elements</td>
</tr>
</tbody>
</table>

#### Management measures proposed in DPEMP

Section 4.4 of the DPEMP states that 'as part of the contractor’s CMP, the contractor will address the following noise related issues prior to commencing work on site as a minimum:
- Hours of work only between 7.00am and 6.00pm Monday to Saturday,
- Vehicle and construction plant noise minimisation,
- Worker hearing protection requirements,

Restricting hours of work to 7.00am and 6.00pm Monday to Saturday forms commitment 35 in the DPEMP Supplement. A CEMP is part of commitment 11 of the DPEMP.

DPEMP Section 4.4.2 also identifies the following reasons why noise emissions will be minimised during operation of the WWTP:
- Distance from receptors and bush surroundings are likely to minimise noise emissions outside the WWTP boundary.
- All pumps are submersible and therefore operate extremely quietly.
- Aerators will have silencers.
- The site will not be permanently manned.
- Minimal vehicular movements are likely to be limited.

TasWater has also committed to the preparation of detailed operations and maintenance manuals for the WWTP and outfall, which is dictated in commitment 28 of the DPEMP.

Commitment 32 of the DPEMP makes the following commitment in relation to noise: Any noise complaints will be monitored and reported to the EPA during construction and operation.
<table>
<thead>
<tr>
<th><strong>Public and agency comment</strong></th>
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<tr>
<td>No comments.</td>
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<thead>
<tr>
<th><strong>Evaluation</strong></th>
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<tbody>
<tr>
<td>Based on the information provided in the DPEMP, noise emissions are likely to be short-term during construction or mitigated by the distance, terrain and vegetation buffer provided by the location of the WWTP and outfall and therefore unlikely to cause any impacts to nearby receptors.</td>
</tr>
<tr>
<td>Management measures are to be included in the CEMP which a requirement of condition <strong>CN1</strong>. Hours of construction activities will be restricted under condition <strong>CN2</strong> to limit potential impacts on nearby sensitive receptors. Any noise complaints during construction and operation will be managed as part of the requirements of condition <strong>G4</strong>.</td>
</tr>
<tr>
<td>The management of noise emissions during operation is expected to be minimised through the use of appropriate equipment and development of operations and maintenance manuals. Noise will be controlled through <strong>N1</strong> which specifies emission limits from the activity to be complied with. The development of an Operational Procedures Manual will be required under standard condition <strong>OP1</strong>. The Operational Procedures Manual must include details on meeting the emission limits and managing complaints.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th><strong>Conclusion</strong></th>
</tr>
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<tbody>
<tr>
<td>TasWater will be required to comply with the following standard (generic) conditions:</td>
</tr>
<tr>
<td><strong>G4</strong> Complaints Register</td>
</tr>
<tr>
<td><strong>CN1</strong> Construction Environmental Management Plan</td>
</tr>
<tr>
<td><strong>CN2</strong> Operating Hours - Construction</td>
</tr>
<tr>
<td><strong>N1</strong> Noise emission limits</td>
</tr>
<tr>
<td><strong>OP1</strong> Operational Procedures Manual</td>
</tr>
</tbody>
</table>
## Issue 2: Waste management

### Description of potential impacts

Inappropriate disposal of general waste during construction and inappropriate disposal of general and solid waste and biosolids during operation of the WWTP causing contamination of land or water.

Minimal waste is expected to be generated during construction activities packaging and transport wastes. The contractor will be required to remove all waste and excess materials from site as part of site demobilisation.

Minimal operating waste is expected from the site other than removal of grit and sludge from the plant at regular intervals after WWTP commissioning. A summary of all likely waste sources and their management is included in Table 3 below:

### Table 3 – Expected Waste Sources and Management

<table>
<thead>
<tr>
<th>Waste</th>
<th>From</th>
<th>Proposed Management</th>
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</thead>
<tbody>
<tr>
<td>Grit</td>
<td>Grit and screening unit</td>
<td>Remove waste bins from site and dispose in approved waste management facility. Where: To Dulverton waste management facility, or Port Latta facility if still accepting this class of waste.</td>
</tr>
<tr>
<td>Sludge</td>
<td>Treatment plant processing</td>
<td>Tankered, or belt pressed and skip binned offsite when required. Disposal will be to an approved sludge disposal site or for biosolids reuse.</td>
</tr>
<tr>
<td>General waste</td>
<td>Site office and WWTP operations</td>
<td>General waste - Place municipal waste bin at end of Chester Avenue weekly for collection by WCC. Recycling - Place municipal bin at end of Chester Avenue monthly for collection by WCC.</td>
</tr>
</tbody>
</table>

### Management measures proposed in DPEMP

Minimal waste is expected to be generated during construction activities. The contractor will be required to remove all waste and excess materials from the site as part of the site demobilisation (Commitment 14 of the DPEMP).

Minimal operating waste is expected from the site other than removal of grit and sludge from the plant at regular intervals.

A belt press will be installed on-site for processes for off-site reuse or disposal.

TasWater will manage all biosolids reuse based on the current EPA guidelines and TasWaters’ draft biosolids reuse policy which is currently being finalised. If biosolids reuse cannot be undertaken for any reason, disposal will be at the Dulverton Landfill facility (Commitment 15 of the DPEMP).

### Public and agency comment

No comments

### Evaluation

Minimal waste is expected to be generated during construction activities and will be removed by the contractor on demobilisation as detailed in commitment 14 of the DPEMP. This commitment will be supported by the development of a CEMP, which is required under standard condition CN1.

Minimal waste is also expected to be produced during operation, apart from grit and sludge from the plant. In the DPEMP Supplement TasWater estimates that 200 cubic metres of biosolids will be generated each year. TasWater has committed to manage all biosolids in accordance with EPA guidelines and their draft internal policy and if reuse is not feasible it will be disposed of to an appropriate waste facility as detailed in commitment 15 of the DPEMP.

The implementation of appropriate biosolid management is supported through the requirements...
for a Sludge Management Plan under condition WM1, implementation of a controlled waste register under condition WM2 and an Operational Procedures Manual under standard condition OP1.

### Conclusion

Any removal of controlled waste must be managed in accordance with the *Environmental Management and Pollution Control (Controlled Waste) Regulations 2010*. TasWater will be required to comply with relevant DPEMP commitments detailed in the 'Evaluation' section.

TasWater will be required to comply with the following standard (generic) conditions:

- **G6** Commitments encompassing commitments 14 and 15.
- **CN1** Construction Environmental Management Plan
- **OP1** Operational Procedures Manual
- **WM1** Sewage Sludge Management Plan
- **WM2** Controlled Waste Register
### Issue 3: Dangerous goods and environmentally hazardous materials

#### Description of potential impacts
Contamination of land or water from chemical spills and leaks during construction, and chemical releases during operation of the WWTP.

During construction small amounts of oils and fuels may be present on site associated with vehicles and equipment. During operation Aluminium sulphate and caustic soda will be stored at the site as part of effluent control.

#### Management measures proposed in DPEMP
According to section 4.6 of the DPEMP TasWater will exercise all care to avoid contamination of the site from chemical spills. This risk of site contamination via spills will be mitigated by the location of appropriate spill containment kits on site during construction and operation of the WWTP.

MSDS for Aluminium sulphate and caustic soda will be available at the WWTP site office during operation.

In the Supplement to the DPEMP TasWater states that the chemical storage tanks are proposed to be self-bunded tanks (double walled) with leak detection in the outer bund tank to Australian Standards. A capture bund to contain spills from pipe burst or spillage during filling will also be provide TasWater confirms that the storage facilities and bunding for the specified chemicals will be designed and constructed in accordance with Australian Standards.

#### Public and agency comment
No comments

#### Evaluation
Chemicals are likely to be stored on site as part of the WWTP operations but restricted in type and quantity. During construction it is likely that chemicals will be limited to fuels and oils for machinery and equipment. The implementation of MSDS and the installation of spill containment kits is considered appropriate to minimise the risk posed by the storage and handling of listed chemicals at the site.

TasWater will be required to implement hazardous materials management through standard conditions **H1** and **H2** and must implement appropriate incident response action through requirements under Section 32 of the EMPCA.

This will be further supported by the requirement under conditions **OP1** and **OP2** to develop Operational Procedures Manual and Contingency Management. Any chemicals stored on site during construction will be managed through the development of a CEMP which is required under standard condition **CN1**. Incident response is also required under condition **G8**.

Effluent management and relevant conditions for preventing contamination of land or water from effluent is considered in Section 6.2 of the EAR.

#### Conclusion
TasWater will be required to comply with the following standard (generic) conditions:
- **G8** Incident Response
- **CN1** Construction Environmental Management Plan
- **H1** Storage and Handling of Hazardous materials
- **H2** Spill kits
- **OP1** Operational Procedures Manual
- **OP2** Contingency Management
### Issue 4: Biodiversity and natural values

<table>
<thead>
<tr>
<th>Description of potential impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts on terrestrial threatened species habitat and threatened ecological values from clearance of vegetation as part of construction of the WWTP and impacts to aquatic values during operation.</td>
</tr>
<tr>
<td>A terrestrial ecological assessment(^{22}) found no ecological values of high conservation significance requiring specific management under local, State and Commonwealth government legislation and other policy instruments were identified.</td>
</tr>
<tr>
<td>An aquatic flora and fauna report conducted in spring 2013(^{23}) in the vicinity of the proposed outfall pipeline and down to Pieman Lake observed biological patterns around the Stitt discharge area in Lake Pieman were currently not of major ecological significance. A subsequent study conducted in autumn 2014 (report submitted to the EPA Division on 1 August 2014) confirmed the earlier findings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management measures proposed in DPEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TasWater intends to design and construct the outfall pipeline and outlet into the Stitt River to ensure minimal impact on the surrounding environment (Commitment 2 of the DPEMP).</td>
</tr>
<tr>
<td>Clearing of the WWTP site, the outfall corridor and the access road were undertaken in accordance with a certified FPP (Section 4.7 of the DPEMP). This Plan is included in Appendix C of the DPEMP.</td>
</tr>
<tr>
<td>Additional proposed management detailed in Section 4.7 of the DPEMP includes the erection of a security fence around the perimeter of the site after completion of construction to stop native animals gaining access to the WWTP and the management of vehicles at the site.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Public and agency comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCAB of DPIPWE reviewed the final DPEMP in relation to natural values, biodiversity and weeds and diseases and concluded that based on the information provided in the DPEMP that indicated no threatened flora or fauna were found on the property they had no further issues with the development.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>As clearing of the WWTP site, the outfall corridor and the access road were undertaken in accordance with a certified FPP no further assessment will be considered in relation to terrestrial biodiversity for these areas.</td>
</tr>
<tr>
<td>Potential impacts on biodiversity and natural values associated with the construction of the outfall, and relevant conditions, are considered in section 6.3 of the EAR. Potential impacts to aquatic flora and fauna are considered in Section 6.2 of the EAR.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>No management measures or conditions required.</td>
</tr>
</tbody>
</table>

\(^{22}\) Appendix P, *Ecological assessment of proposed WWTP, Stitt River, Rosebery, Tasmania, ECOTas.*  
### Issue 5: Weed and Disease Management

#### Description of potential impacts

Introduction and spread of weeds and diseases as a result of construction and operation of the WWTP and outfall.

As detailed in the ecological assessment prepared for the DPEMP\(^{24}\), four species, classified as a “declared weeds” within the meaning of the *Tasmanian Weed Management Act 1999*, were detected from the study area.

Two other “environmental weeds” within the meaning of Schedule 1 of the West Coast Planning Scheme 1999 are present. Two additional exotic species of potential concern but not formally classified under the Act or Scheme were also present.

No evidence of plant disease (*Phytophthora cinnamomi*, rootrot fungus; myrtle wilt) was detected: the former is unlikely to be a significant management issue but consideration of minimising the risk of introducing myrtle wilt is recommended.

The study area was found to be within a “data hole” with respect to records of frog chytrid disease. It was recommended to assume that the disease is absent and to manage construction and operation of the facility to minimise the risk of introducing the pathogen.

#### Management measures proposed in DPEMP

TasWater intends to implement management of declared and environmental weeds and the prevention of introduction diseases prior to and during construction as detailed in commitments 16 and 17 of the DPEMP.

TasWater also intends to implement disease management through a washdown procedure detailed in the CEMP (Commitment 18). A CEMP is commitment 11 in the DPEMP.

TasWater intends to remove contaminated vegetation material (i.e. material containing weed cuttings) from site, and dispose at a registered municipal disposal facility, in accordance with the disposal facility’s regulations on weed-contaminated material to minimise weed and disease issues (DPEMP Commitment 19).

To ensure that construction has not caused the a significant increase in weeds across the site TasWater will assess weeds on the site by the appropriate personnel 6 months after any installation of facilities, access tracks and ancillary infrastructure. Where weed infestations are detected, appropriate control measures will be implemented as soon as practical (DPEMP Commitment 20).

Section 4.7 of the DPEMP also detailed the following recommendations from the Ecological Assessment report committed to by TasWater.

During the construction phase:

- avoid, as far as possible, introduction of high-risk products to the area (e.g. gravel that has come from a quarry infected with *Phytophthora cinnamomi* (PC) or where weeds are present);
  - NOTE: Forestry Tasmania maintains a register of quarries and borrow pits certified PC-free;
- the contractor must advise TasWater prior to commencing work of their specified location from where materials such as gravel and soils will be sourced, as per the above guidelines;
- apply weed and *Phytophthora cinnamomi* hygiene prescriptions to all machinery and vehicles associated with construction of the facility;
- encourage good hygiene practices by users (e.g. staff and contractors);
- manage vehicle access (e.g. by minimising access points to the facility).

It is expected these requirements will be reflected in the CEMP which is commitment 11 in the DPEMP.

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\(^{24}\) Appendix P, *Ecological assessment of proposed WWTP, Stitt River, Rosebery, Tasmania*, ECOTas.
### Public and agency comment

PCAB of DPIPWE reviewed the final DPEMP in relation to natural values, biodiversity and weeds and diseases. They concluded that based on the information provided in the DPEMP, that a comprehensive plan is in place to manage weeds and diseases, they had no further issues with the development.

### Evaluation

The ecological assessment identified the presence of declared weeds and environmental weeds within the proposed WWTP and outfall area.

Clearing of the WWTP site, the outfall corridor and the access road has been undertaken in accordance with a certified FPP. This Plan is included in Appendix C of the DPEMP. Commitments 16-18 of the DPEMP have been integrated and implemented as part of this plan and are not considered further in the assessment.

The potential for the spread of these weeds and the introduction of other weeds and diseases is likely to be low with the integration of relevant management measures, including **commitment 17.1** and **commitment 18** of the DPEMP into the CEMP required under standard condition **CN1**.

Ongoing management of weeds and diseases at the WWTP during operation will be supported through development of the Operational Procedures Manual under condition **OP1**, which should contain requirements to undertake regular weed assessments consistent with **commitment 20**.


### Conclusion

TasWater will be required to comply with relevant DPEMP commitments detailed in the ‘Evaluation’ section.

TasWater will be required to comply with the following standard (generic) conditions:

- **G6**  Commitments encompassing commitments 17.1, 18 and 20.
- **CN1**  Construction Environmental Management Plan
- **OP1**  Operational Procedures Manual
### Issue 6: Traffic impacts

#### Description of potential impacts

Increased traffic movements causing increased noise and dust issues and lack of amenity to local residents and other receptors.

Access to the site is via the following road network: Murchison Highway, then Gepp Street, then Max Fitzallen Drive, then Chester Avenue.

Expected traffic movements are summarised below (Table 22 of the DPEMP):

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Expected Vehicle Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>During construction</td>
<td>Daily</td>
<td>Multiple delivery cars and trucks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction crew vehicles</td>
</tr>
<tr>
<td>Ongoing operations and</td>
<td>Twice a week</td>
<td>Single vehicle</td>
</tr>
<tr>
<td>routine maintenance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste removal (excluding</td>
<td>Monthly – or may be</td>
<td>Single vehicle</td>
</tr>
<tr>
<td>WCC collectable waste)</td>
<td>longer</td>
<td></td>
</tr>
<tr>
<td>Sludge removal</td>
<td>Monthly – or may be</td>
<td>Single vehicle</td>
</tr>
<tr>
<td></td>
<td>longer</td>
<td></td>
</tr>
<tr>
<td>Special maintenance</td>
<td>As required</td>
<td>Single or several vehicles only</td>
</tr>
<tr>
<td></td>
<td>Estimate - Annually</td>
<td></td>
</tr>
</tbody>
</table>

#### Management measures proposed in DPEMP

No specific traffic management measures are proposed in the DPEMP based on expected minimal traffic impacts. However commitment 32 of the DPEMP has relevance to traffic management in relation to noise. This commitment states:

*Noise complaints will be monitored and reported to the EPA if required during construction or ongoing operation.*

#### Public and agency comment

No comments.

#### Evaluation

The majority of traffic impacts will occur during the construction period, which is likely to be limited in duration. TasWater have committed to road and access upgrades which are expected to improve access to the WWTP site and reduce some impacts, including dust generation. The access will remain a private road and during operation traffic movements are likely to be limited and infrequent as per Section 4.19 of the DPEMP.

Traffic management, in relation to noise and dust is expected to be addressed in the CEMP which is required under standard permit conditions **CN1**. Hours of construction activities, including traffic movement, will be restricted under condition **CN2** to limit potential impacts on nearby sensitive receptors. Management of noise complaints will be required under standard condition **G4**. The response to complaints received during operation of the WWTP will be managed through appropriate procedures contained in the Operational Procedures Manual developed under condition **OP1**. These actions are considered suitable for managing any traffic issues.

#### Conclusion

TasWater will be required to comply with the following standard (generic) conditions:

- **G4** Complaints Register
- **CN1** Construction Environmental Management Plan
- **CN2** Operating Hours - Construction
- **OP1** Operational Procedures Manual
### Issue 7: Greenhouse gases and ozone depleting substances

<table>
<thead>
<tr>
<th>Description of potential impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release of greenhouse gas (GHG) and ozone depleting substances emissions from operation of the WWTP.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management measures proposed in DPEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>The treatment process chosen by TasWater i.e. full aerobic treatment, converts all of the carbon not captured as biomass into CO2. Fugitive emissions at the plant are estimated to be around 200kg/d. TasWater will report to NGERS and Rosebery STP’s emissions will be calculated at that time as will the electricity associated with running the plant. Other GHG emissions relate to energy and fuel consumption, and DPEMP states that these will be managed through installation of high efficiency equipment, appropriate use and maintenance and use of hydroelectric power. Use of ozone depleting substances at the WWTP is considered unlikely.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Public and agency comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>No comments.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The GHG emissions from construction and operation of the WWTP are likely to be limited and appropriate design and use of equipment and use of renewable energy will minimise emissions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>No management measures or conditions required.</td>
</tr>
</tbody>
</table>
**Issue 8: Heritage**

**Description of potential impacts**

Damage or disturbance to Aboriginal or European heritage values from construction of the WWTP, outfall and access road. Both the Aboriginal and European heritage studies conducted for the proposal found no heritage values in the area of construction and operation.

**Management measures proposed in DPEMP**

TasWater and its contractors will comply with the Aboriginal Relics Act 1975 and any associated local government legislation during the site works, and if during works any Aboriginal cultural heritage material are found TasWater will cease work and contact Aboriginal Heritage Tasmania (AHT) (Commitment 23 of the DPEMP)

If any significant historic heritage sites are located during construction, TasWater will cease work until the site has been assessed by an appropriately qualified heritage practitioner and a management strategy developed. Both Heritage Tasmania and WCC will be notified of any unanticipated discoveries (Commitment 24 of the DPEMP).

**Public and agency comment**

No comments.

**Evaluation**

Both the Aboriginal and European heritage studies conducted for the site found no heritage values in the area of construction and operation. TasWater has committed to implementation of relevant actions under dictated heritage legislation and policy in commitments 24 and 25 of the DPEMP should any values be found during activities on the site.

**Conclusion**

No management measures or conditions required.

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**Issue 9: Socio-economic issues**

**Description of potential impacts**

Loss of business and employment in the area as well as increased loss of amenity.

**Management measures proposed in DPEMP**

According to the DPEMP no negative social or economic impacts have been identified and that the WWTP may provide some local employment during construction and operation. The WWTP development and upgrades of the current SPS is likely to improve the treatment of wastewater in Rosebery and prevent issues such as overflows. The outfall is located downstream of Rosebery to prevent any amenity issues relating to the township and use of the Stitt River.

**Public and agency comment**

No comments.

**Evaluation**

The development is unlikely to cause any negative socio-economic issues and may actually provide a positive output from some job creation and improving wastewater treatment services in Rosebery.

**Conclusion**

No management measures or conditions required.

---

### Issue 10: Infrastructure and offsite ancillary facilities

**Description of potential impacts**

Increased use of current infrastructure and services impacting nearby receptors and the community. A small site office with amenities, will be built as part of the WWTP, this will be integrated into the sewage network built for the WWTP.

The following services will need to be extended into the site off Chester Avenue to service the proposed development:

- Underground water supply pipeline,
- Overhead power supply.

Current TasWater depots and offices in Zeehan and Forth will be used as bases for operational crews and asset management services. Dulverton Regional Landfill will be utilised for any waste disposal.

3 existing SPS will be connected to the Rosebery WWTP and are ancillary to the operation of the WWTP, however the SPS and associated infrastructure connecting to the WWTP beyond the boundary of the land defined under the permit do not form part of the proposal and remain as Level 1 activities regulated by Council.

**Management measures proposed in DPEMP**

The 3 SPS will also form part of the Inflow and Infiltration (I/I) reduction program which forms commitment 22 of the DPEMP.

TasWater has committed to the upgrade of pump capacity at the 3 SPSs as part of the WWTP proposal (commitment 33 of the DPEMP Supplement).

**Public and agency comment**

No comments.

**Evaluation**

The construction and operation of the WWTP is unlikely to have any impact on current infrastructure or offsite ancillary facilities as current, established facilities are to be used during construction and operation. Potential traffic impacts are considered in Issue 13 of the EAR.

Although, TasWater has committed to the upgrade of pump capacity at the 3 SPSs as part of the WWTP proposal (commitment 33 of the DPEMP Supplement) and the 3 SPS will also form part of the Inflow and Infiltration (I/I) reduction program (condition OP5), the operation and maintenance of the SPSs do not form part of the assessment and therefore no conditions will be considered for this off-site, ancillary infrastructure.

**Conclusion**

No management measures or conditions required.
### Issue 11: Cumulative and interactive impacts

**Description of potential impacts**
The construction and operation of the WWTP could increase impacts on sensitive receptors by adding to current levels of noise, air emissions and effluent discharge.

**Management measures proposed in DPEMP**
TW otherwise considers the emissions from the WWTP is negligible in contributing additionally to the environs and is qualified without detailed commentary being able to be provided. WWTP impacts to receiving waters due to the discharge of effluent, noise and air are discussed separately in respective Sections 4.1, 4.2 and 4.4 of the DPEMP.

**Public and agency comment**
No comments.

**Evaluation**
Based on the type of activity and the distance to other sources of noise, air emissions and effluent discharge the WWTP is considered unlikely to have cumulative or interactive impacts on sensitive receptors, including nearby residents and the Stitt River. Management measures and relevant conditions for potential impacts of noise, effluent discharge and air emissions are detailed in Issue 2, Section 6.2 and 6.4 of the EAR, respectively.

**Conclusion**
No management measures or conditions required.

### Issue 12: Decommissioning and rehabilitation

**Description of potential impacts**
Cessation of the activity and the demolition of facilities causing impacts to the environment.

**Management measures proposed in DPEMP**
Section 5.9 of the DPEMP identifies that TasWater will prepare a Decommissioning and Rehabilitation Plan specific to the Rosebery WWTP.

**Public and agency comment**
No comments.

**Evaluation**
TasWater are aware of the likely requirements for decommissioning and rehabilitation in the event that the WWTP ceases operation. Decommissioning and rehabilitation requirements will be stipulated in standard conditions D1, D2 and D3, which will be appropriate to ensure that the potential for environmental impacts is minimised.

**Conclusion**
TasWater will be required to comply with the following standard (generic) conditions:
- DC1 Notification of cessation
- DC2 DRP Requirements
- DC3 Rehabilitation following cessation
## Appendix 2  Summary of public and agency submissions

### A. Referral agency comments

<table>
<thead>
<tr>
<th>Agency</th>
<th>DPEEMP section</th>
<th>Comment</th>
<th>Further information required by EPA</th>
</tr>
</thead>
</table>
| *Hydro Tasmania* | Liquid Effluent | Hydro Tasmania generally supports the proposal. However, Hydro have some concerns that the impact of the plant on the receiving waters in Lake Pieman has not been given due consideration.  
We are concerned that nutrient enrichment in the Stitt River below the outfall may result in algal blooms in the upper reaches of Lake Pieman, as the report clearly identifies the mixing zone in the Stitt River is insufficient for the water quality in the Stitt River to be consistent with the Water Quality Objectives at the confluence with Lake Pieman.  
This risk is of particular concern during summer or periods when there are station outages at Bastyan Power Station. Monitoring of water quality (nutrients and algal community) in the vicinity of where the Stitt River enters Lake Pieman for the first 3 years post commissioning of the STP would enable the need for any risk mitigation measures identified in section 6.2 of the Environmental Risk Assessment to be assessed.  
Environmental Risk Assessment O3 appears to indicate that 15L/s of raw effluent will be discharged to the Stitt River on average 30 times per year. Does this comply with the Discharge Limits to Fresh and Marine Waters? | Provide details of the risk assessments undertaken in relation to the potential for the activity to cause algal blooms and provide details of the mitigation and management measures proposed to prevent and manage algal blooms.  
Provide details of how the discharge amounts will meet proposed discharge limits (AMT) and proposed monitoring commitments. |
## B. EPA Division comments

<table>
<thead>
<tr>
<th>DPEMP section no.</th>
<th>Comment</th>
<th>Further information required by EPA</th>
</tr>
</thead>
</table>
| All              | All commitments should be identified and stated in each section of the DPEMP, then consolidated in a commitments table at the end of the DPEMP with these headings:  
  • Commitment Number  
  • Detail (i.e. wording of the commitment)  
  • When (i.e. when will the commitment be realised during construction, at all times, …) | Ensure that all ‘commitments’ made in the body of the DPEMP are listed in the commitments table as per the format in the PSGs.  
Where additional actions have been committed to in the Supplement – an updated full list of commitments must be provided. |
| Appendix C        | The Forest Practice Plan provided in the DPEMP (Appendix C) does not appear to be the final signed/approved copy. | Provide a copy of the final/approved FPP. |
| 1.1              | The statement “no growth is expected across the catchment for the life of the WWTP” needs clarification. | The statement should be supported with a reference as to what evidence the statement is based on – e.g. population forecasts, reports to Council, recent growth rates - and should state what lifespan of the new WWTP is expected to be. |
| 2.1.2            | According to this section, part of the WWTP project is to upgrade the pump capacity of the 3 off-site SPSs but there is no commitment to this work. | A commitment date for the upgrade of the pump capacity of the three SPSs should be included in the commitments section. |
|                  | Influent metals sampling information is not provided in the DPEMP but should have been acquired as part of the AMP. | Provide information on influent metals sampling. High concentrations of some metals can be detrimental to the media in the activated sludge wastewater treatment process, therefore the DPEMP needs to demonstrate that the potential for high levels of metals to be present in the influent has been assessed and if found to be present, has been taken into account in the design of the treatment process. |
| 2.4              | The proposed process components and design specifications are unclear (e.g. will there by one SBR tank and a decant tank or two SBR tanks?) | Full details of proposed design and updated design drawings need to be provided, including outfall design. |
| 2.4 | Confirmation that proposed AMT discharge limits can be achieved, and how the process design will support achieving this, possibly in the form of the SMEC peer review report referenced in the DPEMP but not provided in the document or referenced in any detail (p27). Estimated removal efficiencies should be provided for all identified pollutants of concern. The high flow end of the flow regime will presumably be much more dilute influent due to the acknowledged high level of stormwater infiltration into the sewerage system, which could pose a problem for the process and lead to process wash out of the biology of the SBR, resulting in the inability of the WWTP to meet the discharge limits. The DPEMP document needs to demonstrate this issue has been sufficiently assessed in the design of the proposed WWTP and with contingencies if it occurs. | With reference to the SMEC report, provide justification on how the treatment process design will meet AMT discharge limits and how high level of stormwater infiltration and loss of biology of the SBR will be managed through the design process and ongoing management. |
| 2.4 | The statement in paragraph 2, p27 that modelling and design with the addition of a 1 ML balance tank will ensure the outfall will not exceed a 1:80 (effluent : receiving water) dilution ratio on a 7Q10 appears to conflict with Table 13 and other statements in this DPEMP, for example section 5.1 of the Stitt River Mixing Zone Assessment report (SKM, dated 3 March 2014) provided in Appendix O of the DPEMP, which states that a dilution of 1:34 will be achieved under 7Q10 flow conditions. | Clarify if a 1:80 dilution will be achieved under 7Q10 flow conditions and if this is the case then provide the referenced additional modelling and design information to support this claim. Clarify any conflicting statements in relation to the achieved dilution of effluent under 7Q10 flow conditions. |
| 4.1 | Informing recreational users of the presence of a WWTP outfall has not been considered as a management action. | Consider a commitment to install signage at the outfall location warning recreational water users of the potential health risks posed by the WWTP discharge. |
| 4.1.5 | To enable assessment of the expected impact of the proposed effluent discharge into the Stitt River the information provided in relation to the expected size of the toxicant mixing zone requires further clarification. Toxicants such as ammonia and nitrate at elevated concentrations are briefly discussed but not corrected for pH in the case of ammonia, and not discussed at all in the | Provide further information in relation to the toxicant mixing zone, including ammonia and nitrate, in the context of the expected plume dynamics, and how they will be managed/monitored during low flow events. |
case of nitrate. With the anticipated low flow scenarios in summer and likelihood of significantly less than 1:80 (effluent : receiving water) dilution being achieved, the potential mixing zone, considering the plume dynamics where the trigger values might be exceeded, needs to be discussed further.

<table>
<thead>
<tr>
<th>4.1.7</th>
<th>Diffuser design drawings should be provided.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4</td>
<td>Section 4.4.1 discusses construction activity hours restrictions as part of noise management. This management action should be reflected in a commitment.</td>
</tr>
<tr>
<td>4.5.1</td>
<td>Insufficient information on biosolid volumes. Provide information on the estimated annual volume of biosolids matter produced and the estimated required removal frequency based on the selected technology.</td>
</tr>
<tr>
<td>4.6</td>
<td>Details of storage facilities, including bunding, for specified chemicals in accordance with relevant Australian Standards are not provided. Provide details of storage facilities, including bunding, for specified chemicals in accordance with Australian standards.</td>
</tr>
<tr>
<td>4.8.1</td>
<td>Insufficient details on proposed discharge regime/plan. Further information needs to be provided on how the proposed discharge regime will be managed – presumably it would be operated on measured flows at the Stitt River weir. Measured receiving water flow rates and proposed associated WWTP discharges need to be clearly stated in the DPEMP, considered as part of the content of the Operational Procedures Manual, and reviewed based on post-commissioning data.</td>
</tr>
</tbody>
</table>
| 5     | This section should outline (e.g. in tabulated form) TasWater’s intended monitoring and review program for water, odour, etc. Typically, a table (or tables) should be provided that specifies: • Sampling location(s) • Sampling parameters • Sampling frequency • Sampling techniques; and • Reporting arrangements (frequency and to whom) A figure (or figures) should also be provided to show all monitoring parameters. Provide a table of proposed monitoring and review with appropriate details and link this into the commitments. Monitoring table and commitments should include: - WWTP commissioning monitoring schedule and provision of a commissioning report to the Director - Plume verification monitoring post commissioning of the WWTP and provision of a plume verification monitoring report to the Director - Submission of an Ambient Monitoring Report (AMR) following implementation of the AMP - Undertaking ongoing biological monitoring and reduced water quality monitoring for a period of 3 - 5 years, and...
<table>
<thead>
<tr>
<th>Appendix O2</th>
<th>GHD report missing from this appendix</th>
<th>Supply the relevant report</th>
</tr>
</thead>
</table>

| 5.7 | Paragraph 3 – states that ‘verification of the air emission model for the WWTP….shall be undertaken on a once off sampling/testing event….’, but this intention is not reflected in section 4.2 of the DPEMP or the list of commitments. Commit to undertaking an odour assessment post-commissioning in line with the statement contained in section 5.7. | submission of annual ambient monitoring reports |
PERMIT PART B
PERMIT CONDITIONS - ENVIRONMENTAL No. 8847

Issued under the Environmental Management and Pollution Control Act 1994

Applicant: TASMANIAN WATER & SEWERAGE CORPORATION PTY LTD
ACN 162 220 653
163 - 169 MAIN RD
MOONAH TAS 7009

Activity: The operation of a wastewater treatment plant (ACTIVITY TYPE: Wastewater Treatment Works)
ROSEBERY WASTEWATER TREATMENT PLANT, DIREENS CORNER
ROSEBERY TAS 7470

The above activity has been assessed as a level 2 activity under the Environmental Management and Pollution Control Act 1994 under delegation from the Board of the Environment Protection Authority.

Acting under Section 25(5)(a)(i) of the EMPCA, the Board of the Environment Protection Authority has required that this Permit Part B be included in any Permit granted under the Land Use Planning and Approvals Act 1993 with respect to the above activity.

Municipality: WEST COAST
Permit Application Reference: 225789
EPA file reference:

Date conditions approved: 04 NOV 2014

Signed: DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY
DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in Schedule 1 of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in Schedule 2 of this Permit Part B.

INFORMATION

Attention is drawn to Schedule 3, which contains important additional information.
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Schedule 1: Definitions

In this Permit Part B:-

90th percentile means the value at which the relevant parameter is exceeded by no more than 10 percent of all sample results over a twelve month period.

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Air Quality EPP means the Environment Protection Policy (Air Quality) 2004 as amended from time to time.

Approved Management Method For Biosolids Reuse means the document of this title first gazetted by the Director in June 2006 as amended by the Director from time to time.

Authorized Officer means an authorized officer under section 20 of EMPCA.

Average Dry Weather Flow means the average of the daily flows to a wastewater treatment plant sustained during dry-weather periods with limited infiltration.

Bypass means the discharge of untreated or partially treated effluent most commonly as a result of WWTP component failure or increased inflows to the WWTP as a result of high rainfall.

Commissioning means the testing of major items of equipment and is taken to be completed when the item(s) are being used or operated in the course of normal commercial operations.

Construction means activities associated with the construction phase of the activity, including but not limited to, activities associated with the clearance of vegetation, site works to create a level site, rock breaking, installation of fences and other infrastructure whether on land or in water.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DPEMP means the document entitled TasWater Rosebery Wastewater Treatment Plant and Discharge Development Proposal & Environmental Management Plan (DPEMP) prepared by TasWater and dated 12th June 2014, and includes supplementary information presented in the document entitled TasWater Rosebery Wastewater Treatment Plant and Discharge Development Proposal & Environmental Management Plan (DPEMP) Supplement prepared by TasWater.

DRP means Decommissioning and Rehabilitation Plan.

Effluent means wastewater discharged from The Land.


Environmental Harm and Material Environmental Harm and Serious Environmental Harm each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and Pollutant each have the meanings ascribed to them in Section 3 of EMPCA.

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

04 NOV 2014
Environmentally Hazardous Material means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.

Median means the value at which the relevant parameter is exceeded by no more than 50 percent of all sample results over a 12 month period.

Noise Sensitive Premises means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Operations means the receipt of wastewater inflow into the WWTP.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

Reporting Period means the 12 months ending on 30 June of each year.

Sewage Sludge means concentrated solids separated from wastewater during the wastewater treatment process.

Sewerage System means a system of pipes, maintenance holes, pumps, treatment facilities and other items for handling wastewater.

SPWQM means the State Policy on Water Quality Management 1997, as amended from time to time.

Tasmanian Biosolids Reuse Guidelines means the document of this title published by the Department of Primary Industries, Water and Environment in August 1999, and includes any subsequent versions of this document.


The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

1. the Plan of Survey (location Town of Rosebery) with preliminary plan reference 16050-2
2. as further delineated at Attachment 1.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Weed means a declared weed as defined in the Weed Management Act 1999.

WWTP means the wastewater treatment plant located on The Land.
Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits
   1 The activity must not exceed the following limits (annual fees are derived from these figures):
      1.1 242 kilolitres per day capacity to treat an average dry weather flow of sewage or wastewater

General

G1 Access to and awareness of conditions and associated documents
   A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 No changes without approval
   1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the Land Use Planning and Approvals Act 1993, or approved in writing by the Director:
      1.1 a change to a process used in the course of carrying out the activity; or
      1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
      1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G3 Change of ownership
   If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.

G4 Complaints register
   1 A public complaints register must be maintained and made available for inspection by an Authorized Officer upon request. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
      1.1 the time at which the complaint was received;
      1.2 contact details for the complainant (where provided);
      1.3 the subject-matter of the complaint;
      1.4 any investigations undertaken with regard to the complaint; and
      1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.
   2 Complaint records must be maintained for a period of at least 3 years.
G5  **Annual Environmental Review**
Unless otherwise approved by the Director a publicly available Annual Environmental Review must be submitted each year within 3 months of the end of the Reporting Period. The Annual Environmental Review must be prepared to the satisfaction of the Director using the latest version of the Annual Environmental Review Template which is available on request from the Director.

G6  **Commitments**
The activity must be carried out in accordance with the commitments contained in Attachment 3 unless otherwise specified in these conditions or unless otherwise approved in writing by the Director.

G7  **Notification prior to commencement**
The Director must be notified in writing of the commencement of operations at least 14 days before that occurs.

G8  **Incident response**
If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G9  **Post-Commissioning Report**
1 Within 15 months of the date of completion of commissioning, or a date otherwise approved in writing by the Director, a Post-Commissioning Report must be prepared and submitted to the Director for approval in the form of a written report.
2 The Post-Commissioning Report must include the following:
   2.1 a report outlining the major aspects and outcomes of the commissioning and initial operational phase including a description of the wastewater treatment process and its components, bypass operation and effluent balance tank operation;
   2.2 a summary of monitoring data collected in accordance with the requirements of condition M1 and Attachment 2, collected in the 12 months from completion of commissioning;
   2.3 details of any complaints in relation to the activity received by the person responsible since commencement of operations of the activity;
   2.4 a review of the environmental performance of the activity including, but not limited to, effluent discharge limit compliance, receiving water impacts, bypass operation, disposal of sewage sludge and emission of odourous gases, highlighting any changes from the performance predicted in the DPEMP and reasons for such changes.

**Atmospheric**

A1  **Odour management**
The person responsible must institute such odour management measures as are necessary to prevent odours causing environmental nuisance beyond the boundary of The Land.

A2  **Odour survey**
1 Unless otherwise approved in writing by the Director, a survey of odour emissions from the activity must be completed within 12 months of the date of completion of commissioning.
2 Within 30 days of the completion of commissioning, the proposed odour survey methodology must be submitted to the Director for approval.

3 The methodology must include:
   3.1 proposals for measurement of odour emissions;
   3.2 recommendations for seasonal and operating conditions most suitable for undertaking the odour survey; and
   3.3 a timetable for the completion of the odour survey.

4 The survey of odour emissions must be undertaken in accordance with the approved methodology.

A3 Odour survey report
1 Odour survey results must be submitted to the Director within 30 days of the completion of the odour survey in the form of a written odour survey report.

2 Unless otherwise approved in writing by the Director, the report must include:
   2.1 a comparison of odour emission rates calculated from the odour survey and the odour emission rates used as an input to the atmospheric dispersion modelling included in the DPEMP; and
   2.2 discuss any difference between the measured odour emission rate values and those assumed as atmospheric dispersion modelling input values in the DPEMP and conclude if odorous gases from the activity are likely to cause environmental nuisance beyond the boundary of The Land.

A4 Atmospheric Dispersion Modelling
1 Unless otherwise approved in writing by the Director, atmospheric dispersion modelling must be completed within 60 days of the odour survey report being submitted to the Director.

2 The atmospheric dispersion modelling must be submitted to the Director in the form of a written report.

3 The report must include:
   3.1 A map of the activity and surrounds with the following particulars:
      3.1.1 The location of emission sources
      3.1.2 The boundary of the Land
      3.1.3 Ground level concentration contours with a key or legend
      3.1.4 The location of the nearest sensitive receptors
   3.2 Details of the limits and criteria specified in the Air Quality EPP relevant to the activity.
   3.3 Odour concentrations at the nearest sensitive receptors.
   3.4 Identification of any breaches of the relevant limits and criteria specified in the Air Quality EPP and explanation of reasons for the presence of breaches.
   3.5 Details of actions proposed to address each identified breach of the limits or criteria.

Construction

CN1 Construction Environmental Management Plan
1 At least 30 days prior to the commencement of construction activities, or by a date otherwise specified in writing by the Director, a Construction Environmental Management Plan ('Construction EMP') must be submitted to the Director.
2 The Construction EMP must contain a detailed description of the proposed timing and sequence of the major construction activities and of the proposed management measures to be implemented to avoid or minimise the environmental impacts during the construction phase. The Construction EMP must include, but not necessarily be limited to, management measures in relation to the following:

2.1 prevention of impacts upon surface water and waterways;
2.2 erosion and sediment control;
2.3 noise control;
2.4 dust control;
2.5 management of environmentally hazardous materials;
2.6 cultural (Aboriginal and non-aboriginal) heritage considerations;
2.7 flora and fauna management;
2.8 weed, pest and disease management;
2.9 quality control arrangements including supervision by appropriately qualified and experienced persons, detailed construction specifications for key items of environmental management infrastructure, documented site procedures, quality control testing and the keeping of appropriate records; and
2.10 acid sulphate soil management (if identified in pre construction testing).

3 Unless otherwise specified in writing by the Director, construction activities must be carried out in accordance with an approved Construction EMP.

CN2 Operating hours - Construction

1 Unless otherwise approved in writing by the Director:
1.1 Construction activities must not be undertaken outside 0700 hours to 1800 hours Monday to Saturday.
1.2 Notwithstanding the above paragraph, the construction activities must not be carried out on Sundays or Public Holidays that are observed State-wide (Easter Tuesday excepted).

CN3 Control of dust emissions during construction

1 Construction activities must be managed using such measures as are necessary to prevent dust emissions causing environmental nuisance. Such measures may include but are not limited to:
1.1 using a dust suppression method such as watering dust generating surfaces; and
1.2 ceasing construction activities in windy weather when dust may be blown in the direction of residences.

CN4 Outfall Construction

1 The person responsible must notify the Director at least one week prior to the commencement of works to construct the WWTP outfall to the Stitt River of the expected date of commencement and duration of these works.
2 Spoils from trenching operations carried out for the construction of the outfall to the Stitt River must be stored in a manner that does not result in the release of solid matter to surface waters.
3 The Stitt River bank must be stabilised following construction of the outfall to ensure the river bank does not erode as a result of the outfall construction works or otherwise release solid matter to the Stitt River.
Decommissioning And Rehabilitation

DC1 Notification of cessation
Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

DC2 DRP requirements
Unless otherwise approved in writing by the Director, a draft Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the planned cessation of the activity or by a date specified in writing by the Director. The DRP must be prepared in accordance with any guidelines provided by the Director.

DC3 Rehabilitation following cessation
1 Following permanent cessation of the activity, and unless otherwise approved in writing by the Director, The Land must be rehabilitated including:
   1.1 stabilisation of any land surfaces that may be subject to erosion;
   1.2 removal or mitigation of all environmental hazards or land contamination, that might pose an on-going risk of causing environmental harm; and
   1.3 decommissioning of any equipment that has not been removed.
2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, decommissioning and rehabilitation must be carried out in accordance with that plan, as may be amended from time to time with written approval of the Director.

Effluent

EF1 Effluent discharge locations
1 Effluent from the activity must only be discharged at the following discharge location:
   1.1 Discharge to water: discharge to Stitt River at a location as close as practicable to grid reference GDA94 E377875 N5373831 as depicted on the plan at Attachment 1.

EF2 Effluent quality limits for discharge to the Stitt River
1 Effluent discharged to the Stitt River must comply with the effluent quality limits set out in Table 1 below, at the Effluent Quality monitoring location specified in Attachment 2.
### Table 1: Effluent Quality Limits for discharge to the Stitt River

<table>
<thead>
<tr>
<th>Substance or measure</th>
<th>Unit of measurement</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
<th>Column 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Minimum limit</td>
<td>Median limit</td>
<td>90th Percentile limit</td>
<td>Maximum limit</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand</td>
<td>mg/L</td>
<td>-</td>
<td>5</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>mg/L</td>
<td>-</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Ammonia Nitrogen</td>
<td>mg/L</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>-</td>
<td>7</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>-</td>
<td>0.5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Oil and Grease</td>
<td>mg/L</td>
<td>-</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Thermotolerant Coliforms</td>
<td>ecfu/100mL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>pH</td>
<td>mg/L</td>
<td>6.5</td>
<td>-</td>
<td>-</td>
<td>8.5</td>
</tr>
</tbody>
</table>

**EF3 Requirements for bypass**

1. Bypass must not occur when the rate of wastewater inflow to the WWTP is less than 32 litres per second.
2. Bypass flows must receive screening prior to discharge.

**EF4 Discharge dilution**

Unless otherwise approved in writing by the Director, effluent discharge from the activity must be managed to maintain a minimum dilution ratio of 1 (effluent) : 80 (receiving waters) at the discharge location.

**Hazardous Substances**

**H1 Storage and handling of hazardous materials**

1. Unless otherwise approved in writing by the Director, environmentally hazardous materials held on The Land must be:
   1.1 located within impervious bunded areas, spill trays or other containment systems; and
   1.2 managed to prevent unauthorised discharge, emission or deposition of pollutants:
      1.2.1 to soils within the boundary of The Land in a manner that is likely to cause serious environmental harm;
      1.2.2 to groundwater;
      1.2.3 to waterways; or
      1.2.4 beyond the boundary of The Land.

**H2 Spill kits**

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations to assist with the containment of spilt environmentally hazardous materials.
Monitoring

M1 Monitoring requirements

1 Unless otherwise specified in writing by the Director, monitoring must be undertaken in accordance with the Table of Monitoring at Attachment 2, as follows:

1.1 the items listed in Column 1 must be sampled or tested at the locations listed in Column 2 for the parameters listed in Column 3 at the frequencies listed in Column 5 using the techniques listed in Column 6; and

1.2 resultant monitoring data must be reported to the Director in accordance with the requirements set out in Column 7 and in the units listed in Column 4.

M2 Dealing with samples obtained for monitoring

1 Any sample or measurement required to be obtained under these conditions must be taken and processed in accordance with the following:

1.1 Australian Standards, NATA approved methods, the American Public Health Association Standard Methods for the Analysis of Water and Waste Water or other standard(s) approved in writing by the Director;

1.2 measurement equipment must be maintained and operated in accordance with the manufacturer's specifications;

1.3 samples must be tested in a laboratory accredited by the National Association of Testing Authorities (NATA), or a laboratory approved in writing by the Director, for the specified test;

1.4 results of measurements and analysis of samples and details of methods employed in taking measurements and samples must be retained for at least three years after the date of collection; and

1.5 noise measurements must be undertaken in accordance with the Tasmanian Noise Measurement Procedures Manual.

M3 Monitoring reporting and record keeping

1 Unless otherwise specified in writing by the Director, a Monthly Monitoring Report, in an electronic format approved by the Director, must be submitted to the Director within 21 days of receipt of laboratory analyses of samples collected for the previous monthly period. As a minimum, the Monthly Monitoring Report must include the following information:

1.1 the laboratories at which sample analyses were carried out;

1.2 contact details for a person responsible for managing monitoring programs;

1.3 the estimated or measured average daily flow to the wastewater treatment plant for the previous monthly period; and

1.4 for each sampling location or site test location:

1.4.1 a location name which allows the location to be clearly identifiable;

1.4.2 the date and time at which each sample was taken or site test conducted;

1.4.3 the indicators for which analyses or tests were carried out and the units in which the results are reported; and

1.4.4 the results for all sample analyses and site tests.

2 A record of all monthly monitoring reports submitted to the Director must be maintained and copies of all laboratory analysis reports referenced to the relevant Monthly Monitoring Reports kept for a minimum period of three years.
M4 Signage of monitoring points
With the exception of ambient sampling, all monitoring points must be clearly marked to indicate the location and name of the monitoring point.

M5 Flow monitoring equipment
1 Flow monitoring equipment must be maintained in accurate working order in accordance with the manufacturer's specifications and, unless otherwise approved in writing by the Director, must be validated at least once every 12 months.

2 The dates on which flow monitoring equipment has been validated must be recorded and validation records kept for a minimum of 3 years.

3 For the purposes of this condition:
   3.1 'validate' means to undertake a set of actions including inspecting the flow monitoring equipment to check that it is installed in compliance with any relevant standards and is maintained to an acceptable state of repair, which provides an acceptable level of confidence that the flow monitoring equipment operates within an acceptable range of error under normal operating conditions.
   3.2 'Flow monitoring equipment' means an instrument, including a flow meter, that measures and may record a flow or level of liquid and includes any ancillary device attached to or incorporated into the instrument.

M6 Event Recorder for Bypass
The person responsible must install an event recorder at a location which ensures that the date, time, duration and bypassed volume of any bypass is recorded.

M7 Effluent Plume Verification Study
1 Unless otherwise approved in writing by the Director, an effluent plume verification study must be conducted within 6 months of the completion of commissioning.

2 Within 30 days of completion of commissioning, the proposed methodology and report format for the study must be submitted to the Director for approval.

3 The methodology must include:
   3.1 justification for the proposed methods to be applied for delineation of the effluent plume within the Stitt River and Lake Pieman;
   3.2 recommendations for seasonal and operating conditions most suitable for undertaking the study; and
   3.3 a timetable for the completion of the study.

4 The study must be undertaken in accordance with the approved methodology.

5 An effluent plume verification study report, prepared in accordance with approved report format, must be submitted to the Director within 30 days of the completion of the study.

Noise Control

N1 Noise emission limits
1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:
   1.1 50 dB(A) between 0800 hours and 1800 hours (Day time); and
   1.2 45 dB(A) between 1800 hours and 2200 hours (Evening time); and
   1.3 40 dB(A) between 2200 hours and 0800 hours (Night time).
2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).

3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.

4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.

5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

Operations

OP1 Operational Procedures Manual

1 An Operational Procedures Manual (‘the Manual’) must be developed within 12 months of the date on which these conditions take effect or by a date specified in writing by the Director. The Manual must provide detailed information relating to the activity and must detail operational procedures as required to ensure compliance with these conditions.

2 The person responsible must take all reasonable and practicable measures to ensure that personnel, including contractors, carry out their duties in accordance with the manual.

OP2 Contingency management

1 Unless otherwise approved in writing by the Director, a Contingency Management Plan must be submitted by the person responsible to the Director within 6 months of the date on which these conditions take effect. The plan must detail measures to prevent and mitigate environmental harm if an unplanned event occurs. Unplanned events that must be addressed by the plan include:

1.1 incidents, accidents, power failures and malfunctions with the potential to cause the release of effluent that does not comply with these conditions;

1.2 pipe ruptures leading to discharge of wastewater;

1.3 fire and flooding.

2 The Contingency Management Plan must include communication procedures for ensuring that water users that may be adversely impacted, the general public and relevant government agencies are informed of any unplanned event to the extent necessary to allow them to take precautions against adverse impacts upon the environment, human health and livestock health.

3 As far as is reasonable and practicable, the Contingency Management Plan must include contact details for all water users that may be impacted by an unplanned event and must be kept up to date by the person responsible.

4 The person responsible must ensure that all personnel are aware of the Contingency Management Plan and their responsibilities in relation to unplanned events and have access at all times to the Contingency Management Plan.

5 The Contingency Management Plan must be implemented if an unplanned event occurs.

OP3 Inflow and Infiltration (I&I) Management Plan

1 An Inflow and Infiltration (I&I) Management Plan must be submitted by the person responsible to the Director for approval within 12 months of the date on which these conditions take effect or by a date otherwise specified in writing by the Director.

2 The I&I Management Plan must contain the following:
2.1 Details of surveys or investigations previously undertaken to identify I&I points within the sewerage system including:
   2.1.1 summaries of results;
   2.1.2 descriptions of the methods used;
   2.1.3 identification of sub-catchment I&I rates; and
   2.1.4 I&I sources identified.
2.2 An outline of future surveys or investigations to be undertaken to identify I&I points within the sewerage system;
2.3 A strategy for the reduction of I&I into the sewerage system including:
   2.3.1 specific reduction targets;
   2.3.2 a table containing all of the commitments made in the strategy; and
   2.3.3 an implementation timetable for the strategy;
3 The person responsible must implement and act in accordance with the approved I&I Management Plan.
4 In the event that the Director, by notice in writing to the person responsible, either approves a minor variation to the approved I&I Management Plan or approves a new I&I Management Plan in substitution for the plan originally approved, the person responsible must implement and act in accordance with the varied plan or the new plan, as the case may be.

**OP4 Signage of discharge location**

Signage must be installed and maintained on land near to outfalls to discourage recreational activities within waters immediately around the outfall. Signage is to alert the public as to the proximity and nature of the discharge.

**Waste Management**

**WM1 Sewage Sludge Management Plan**

1 A Sewage Sludge Management Plan must be submitted to the Director for approval within 12 months of the date on which these conditions take effect, or by a date otherwise specified in writing by the Director.
2 The Sewage Sludge Management Plan must be prepared with reference to the Tasmanian Biosolids Reuse Guidelines and must include a proposal for the appropriate end use or disposal of sewage sludge.
3 The Sewage Sludge Management Plan must contain a description of any onsite containment facility for sewage sludge at the WWTP including measures to prevent environmental nuisance.
4 Unless otherwise approved in writing by the Director, sewage sludge must be managed in accordance with the Sewage Sludge Management Plan approved in writing by the Director.

**WM2 Controlled Waste Register**

1 A Controlled Waste Register, to document storage and movement of sewage screenings, grit material, sewage sludge and biosolids, must be maintained and made available for inspection by an Authorized Officer upon request.
2 The Controlled Waste Register must:
   2.1 keep an accurate record of type and quantity of Controlled Wastes stored on The Land, with the exception of sewage sludge contained within lagoons; and
   2.2 record the following detail in relation to Controlled Waste removed from The Land:
2.2.1 the type of Controlled Waste;
2.2.2 the quantity of Controlled Waste;
2.2.3 the Controlled Waste Transporter who moved the Controlled Waste;
2.2.4 the date the Controlled Waste was moved;
2.2.5 the recipient of the Controlled Waste; and
2.2.6 The destination address of the Controlled Waste.

3 Controlled Waste records must be maintained for a period of at least 3 years.
Schedule 3: Information

Legal Obligations

LO1  EMPCA
The activity must be conducted in accordance with the requirements of the Environmental Management and Pollution Control Act 1994 and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO2  Storage and handling of Dangerous Goods, Explosives and dangerous substances
1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:
   1.1 Work Health and Safety Act 2012 and subordinate regulations;
   1.2 Explosives Act 2012 and subordinate regulations; and
   1.3 Dangerous Goods (Road and Rail Transport) Act 2010 and subordinate regulations.

LO3  Change of responsibility
If the person responsible for the activity ceases to be responsible for the activity, they must notify the Director in accordance with Section 45 of the EMPCA.

Other Information

O11  Notification of incidents under section 32 of EMPCA
Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning 1800 005 171 (a 24-hour emergency telephone number).

O12  Waste management hierarchy
1 Wastes should be managed in accordance with the following hierarchy of waste management:
   1.1 waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;
   1.2 waste should be re-used or recycled to the maximum extent that is practicable; and
   1.3 waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.

Policy Requirements

PR1  Policy Framework
1 The policy framework and guidelines relevant to implementation of policy are as follows:
   1.1 State Policy on Water Quality Management (SPWQM);
   1.2 Emission Limit Guidelines for Sewage Treatment Plants That Discharge Pollutants In To Fresh And Marine Waters, June 2001;
1.3 Approved Management Method For Biosolids Reuse;
1.4 Tasmanian Biosolids Reuse Guidelines; and
1.5 Environmental Guidelines for the Use of Recycled Water in Tasmania, December 2002.
<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
<th>Column 6</th>
<th>Column 7 Reporting requirements</th>
</tr>
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<tbody>
<tr>
<td>Item</td>
<td>Locations</td>
<td>Parameter</td>
<td>Unit of Measure</td>
<td>Frequency</td>
<td>Technique</td>
<td>1. To be reported in the Monthly Monitoring Report as an average of daily flow for the reported month. 2. To be reported in the Annual Environmental Review as monthly averages of daily flow</td>
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<tr>
<td>WWTP Inflow</td>
<td>WWTP Inlet</td>
<td>Flow</td>
<td>ML/day</td>
<td>Continuous measurement</td>
<td>Flow meter</td>
<td>1. To be reported in the Monthly Monitoring Report as an average of daily flow for the reported month. 2. To be reported in the Annual Environmental Review as monthly averages of daily flow</td>
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<tr>
<td>Influent Quality</td>
<td>WWTP Inlet</td>
<td>pH</td>
<td>pH units</td>
<td>Annually</td>
<td>Field Test or online</td>
<td>1. Results to be reported in the Monthly Monitoring Report 2. A summary of results to be provided in the Annual Environmental Review</td>
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<tr>
<td></td>
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<td>Temperature</td>
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<td>Flow-weighted 24 hour composite sample</td>
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<td>Conductivity</td>
<td>dS/m</td>
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<td>Thermotolerant Coliforms</td>
<td>cfu/100mL</td>
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<td>Enterococci</td>
<td>cfu/100mL</td>
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<td>Biochemical Oxygen Demand</td>
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<td>Suspended Solids</td>
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<td>Ammonia-Nitrogen</td>
<td>mg/L</td>
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<td>Nitrate-Nitrogen</td>
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<td>Total Phosphorus</td>
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<td>Aluminium (total &amp; dissolved)</td>
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<td>Arsenic (total &amp; dissolved)</td>
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<td>Cadmium (total &amp; dissolved)</td>
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<td>Copper (total &amp; dissolved)</td>
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<td>Lead (total &amp; dissolved)</td>
<td>mg/L</td>
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<td>Manganese (total &amp; dissolved)</td>
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<td>Mercury (total &amp; dissolved)</td>
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<td>Nickel (total &amp; dissolved)</td>
<td>mg/L</td>
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<td>Selenium (total &amp; dissolved)</td>
<td>mg/L</td>
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<td>Silver (total &amp; dissolved)</td>
<td>mg/L</td>
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<td></td>
<td>Zinc (total &amp; dissolved)</td>
<td>mg/L</td>
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<tr>
<td>Receiving Water Flow</td>
<td>Stilt River weir at coordinates as close as practicable to GDA94 E 379440 N 5373185</td>
<td>Flow</td>
<td>ML/day</td>
<td>Continuous measurement</td>
<td>Hydrometric stream gauging station</td>
<td>1. Results to be included in the Annual Environmental Review as a summary and as part of an analysis of the ratio of stream flow to effluent discharge flow for the Reporting Period</td>
</tr>
<tr>
<td>WWTP Outflow</td>
<td>WWTP Outlet to Stilt River</td>
<td>Flow</td>
<td>ML/day</td>
<td>Continuous measurement</td>
<td>Flow meter</td>
<td>1. To be reported in the Monthly Monitoring Report as total daily flow on the day of sampling. 2. To be reported in the Annual Environmental Review as monthly flows for each calendar month, based on daily flows for that month. 3. To be included in mass load calculations within the Annual Environmental Review; mass load calculations to be based on total daily flow on the day of sampling. 4. A summary of results including graphical presentation to be provided in the Annual Environmental Review.</td>
</tr>
<tr>
<td>Column 1 Item</td>
<td>Column 2 Locations</td>
<td>Column 3 Parameter</td>
<td>Column 4 Unit of Measure</td>
<td>Column 5 Frequency</td>
<td>Column 6 Technique</td>
<td>Column 7 Reporting requirements</td>
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<td>Effluent Quality</td>
<td>At a location which ensures any samples taken are representative of the quality of treated wastewater flow (excluding bypass flow)</td>
<td>pH</td>
<td>pH units</td>
<td>Monthly</td>
<td>Field Test or online</td>
<td>1. Results to be reported in the Monthly Monitoring Report 2. A summary of results including graphical presentation to be provided in the Annual Environmental Review.</td>
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<td></td>
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<td>Temperature</td>
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<td>Conductivity</td>
<td>dS/m</td>
<td>Monthly</td>
<td>Grab sample</td>
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<td>Thermotolerant Coliforms</td>
<td>cfu/100mL</td>
<td>Monthly</td>
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<td>Enterococci</td>
<td>cfu/100mL</td>
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<td>Biochemical Oxygen Demand</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Flow-weighted 24 hour composite sample</td>
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<td>Suspended Solids</td>
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<td>Ammonia-Nitrogen</td>
<td>mg/L</td>
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<td>Nitrate-Nitrogen</td>
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<td>Total Nitrogen</td>
<td>mg/L</td>
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<td>Total Phosphorus</td>
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<td>Oil and Grease</td>
<td>mg/L</td>
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<td>Aluminium (total &amp; dissolved)</td>
<td>mg/L</td>
<td>Annually</td>
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<td>Arsenic (total &amp; dissolved)</td>
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<td>Barium (total &amp; dissolved)</td>
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<td>Cadmium (total &amp; dissolved)</td>
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<td>Chromium (total &amp; dissolved)</td>
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<td>Copper (total &amp; dissolved)</td>
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<td>Lead (total &amp; dissolved)</td>
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<td>Manganese (total &amp; dissolved)</td>
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<td>Selenium (total &amp; dissolved)</td>
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<td>Silver (total &amp; dissolved)</td>
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<td>Zinc (total &amp; dissolved)</td>
<td>mg/L</td>
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<tr>
<td>Wastewater bypass</td>
<td>At a location which complies with the requirements of condition M6</td>
<td>Date and time</td>
<td>Date and time</td>
<td>Automated event recorder that logs bypasses. Automated event recorder that logs duration of bypasses.</td>
<td>Report the following in the Annual Environmental Review: 1. Date, volume discharged, discharge location and level of treatment; 2. Total number of bypasses in the reporting period</td>
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<td></td>
<td></td>
<td>Duration of bypass</td>
<td>Time (days, hours, minutes)</td>
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<td>Flow</td>
<td>Kilolitres</td>
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<tr>
<td>Wastewater bypass quality</td>
<td>At a location which ensures any samples taken are representative of the quality of any bypass flow</td>
<td>pH</td>
<td>pH units</td>
<td>When bypass occurs</td>
<td>Field Test or online</td>
<td>1. Results to be reported in the Monthly Monitoring Report 2. A summary of results including graphical presentation to be provided in the Annual Environmental Review. 3. Estimated annual mass loads of total nitrogen (kg/a) and total phosphorus (kg/a) to be provided in the Annual Environmental Review.</td>
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<tr>
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<td>Temperature</td>
<td>°C</td>
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<td>Conductivity</td>
<td>dS/m</td>
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<td>Thermotolerant Coliforms</td>
<td>cfu/100mL</td>
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<td>Enterococci</td>
<td>cfu/100mL</td>
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<td>Biochemical Oxygen Demand</td>
<td>mg/L</td>
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<td></td>
<td>Suspended Solids</td>
<td>mg/L</td>
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<td>Ammonia-Nitrogen</td>
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<td>Nitrate-Nitrogen</td>
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<td>Nitrite-Nitrogen</td>
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<td>Total Nitrogen</td>
<td>mg/L</td>
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<td></td>
<td>Total Phosphorus</td>
<td>mg/L</td>
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<td></td>
<td>Oil and Grease</td>
<td>mg/L</td>
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<td>Item</td>
<td>Locations</td>
<td>Parameter</td>
<td>Unit of Measure</td>
<td>Frequency</td>
<td>Technique</td>
<td>Reporting requirements</td>
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<tr>
<td>Ambient water quality</td>
<td>Sites SSP2, SSP3, SSP4, PSP1, PSP2 as described in section 5.1.2 of the AMP and site 17 as described in Table 2 of &quot;Survey of Aquatic Biota, Spring 2013 and Autumn 2014&quot; and further shown in Attachment 4</td>
<td>pH</td>
<td>pH units</td>
<td>Twice per year (spring and autumn) concurrently with aquatic biota monitoring</td>
<td>Field Test</td>
<td>1. Results to be reported in the Monthly Monitoring Report 2. Results must be submitted annually within 3 months of the end of the Reporting Period in form of a report prepared by a suitably qualified professional. The report must provide interpretation on whether monitoring results indicate evidence of environmental impact caused by the activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temperature</td>
<td>°C</td>
<td></td>
<td>Grab sample</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conductivity</td>
<td>dS/m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dissolved Oxygen</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hardness</td>
<td>mg CaCO₃/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Turbidity</td>
<td>NTU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suspended Solids</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ammonia-Nitrogen</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nitrate-Nitrogen</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nitrite-Nitrogen</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dissolved Reactive Phosphorus</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chlorophyll-a</td>
<td>mg/L</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Thermotolerant Coliforms</td>
<td>cfu/100mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enterococci</td>
<td>cfu/100mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aluminium (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arsenic (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Barium (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Cadmium (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Chromium (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Copper (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Lead (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Manganese (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mercury (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nickel (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Selenium (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Silver (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zinc (total &amp; dissolved)</td>
<td>mg/L</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment</td>
<td>Sites SSP2, SSP3, SSP4, PSP1, PSP2 as described in section 5.1.2 of the AMP and site 17 as further shown in Attachment 4</td>
<td>As listed in Table 13 of the AMP</td>
<td></td>
<td>As described in the AMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>As described in the AMP</td>
<td></td>
<td></td>
<td></td>
<td>1. Results must be submitted annually within 3 months of the end of the Reporting Period in form of a report prepared by a suitably qualified professional. The report must provide interpretation on whether monitoring results indicate evidence of environmental impact caused by the activity.</td>
</tr>
<tr>
<td>Aquatic Biota</td>
<td>Sites S5, S6 as described in Table 1 and sites 16, 17, 18 as described in Table 2 of &quot;Survey of Aquatic Biota, Spring 2013 and Autumn 2014&quot; and as further shown in Attachment 4</td>
<td>Using the methodology established in &quot;Survey of Aquatic Biota, Spring 2013 and Autumn 2014&quot;</td>
<td></td>
<td>Using the methodology established in &quot;Survey of Aquatic Biota, Spring 2013 and Autumn 2014&quot;</td>
<td></td>
<td>1. Results must be submitted annually within 3 months of the end of the Reporting Period in form of a report prepared by a suitably qualified professional. The report must provide interpretation on whether monitoring results indicate evidence of environmental impact caused by the activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Twice per year (spring and autumn)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sludge/ Biosolids</td>
<td>Sludge/ Biosolids located on The Land</td>
<td>In accordance with the Tasmanian Biosolids Reuse Guidelines 1999, or as otherwise approved by the Director.</td>
<td></td>
<td></td>
<td></td>
<td>1. As required in the Annual Environmental Review. 2. As otherwise approved by the Director.</td>
</tr>
</tbody>
</table>
For the purposes of the Table of Monitoring Requirements the following definitions apply:

Flow meter means an instrument that measures and records a flow or level of liquid and includes any ancillary device attached to or incorporated into the instrument.

Continuous measurement means automatic ongoing measurement at all times.

On-line means measurements or analyses are carried out automatically and the results electronically recorded for remote viewing and analysis.

Field test/on-site test means either in situ testing or analysis of samples immediately with appropriate instrumentation.

Grab sample means a discrete sample collected in a manner that ensures it is a representative sample.

Flow weighted 24 hour composite means a composite sample consisting of grab samples taken and mixed in such a way that the sample volume is proportional to the wastewater flow or a sample collected continuously over a 24 hour period at a rate proportional to wastewater flow.


### ATTACHMENT 3 – RELEVANT COMMITMENTS
(from section 17 of the TasWater Rosebery Wastewater Treatment Plant and Discharge Development Proposal & Environmental Management Plan (DPEMP) Supplement)

<table>
<thead>
<tr>
<th>Number</th>
<th>Commitment</th>
<th>Timeline for Implementation</th>
</tr>
</thead>
</table>
| 2      | Design and construct the outfall pipeline and outlet into the Stitt River to ensure minimal impact on the surrounding environment.                                                                          | 1/06/2015  
(During construction)                                        |
| 3      | The inlet works will be bunded to ensure any overflow into the WWTP is contained within the plant site. The bunded area shall include a sump and return pump, as well as alternative access for a sucker truck to capture larger spills. | 1/06/2015                                                                                   |
| 4      | An effluent balance tank will be installed as part of the Rosebery WWTP to maximise disinfection and minimise effluent flow rates discharged from the plant into the Stitt River. This will be utilised when high effluent flows are generated from the WWTP and flows along the Stitt River are low eg during summer and other low rainfall periods. | 1/06/2015  
(During construction)                                        |
| 5      | TasWater will cover and ventilate the following odour emission sources as part of the WWTP design:  
1. Inlet works ie screens and channels, and screening bin  
2. Sludge holding tank  
3. V-fold belt press unit (but not the belt press building air)  
4. Spirotainer | 1/06/2015  
(During construction)                                        |
| 6      | A point source stack discharge at least 10 metres high with suitable odour treatment such as a 2 stage bio trickling filter / activated carbon system or wet chemical scrubber. | 1/06/2015  
(During Construction)                                        |
| 14     | Remove all solid waste and excess materials from site as part of site demobilisation.                                                                                                                      | 1/06/2015  
(During construction)                                        |
| 15     | All biosolids reuse based on the current EPA guidelines. If biosolids reuse cannot be undertaken for any reason, disposal will be at the Dulverton Landfill facility.                                             | 1/07/2015  
(ongoing)                                                       |
| 17.1   | Frog chyrid disease:  
* ensure that vehicles, machinery, equipment, materials and personnel adhere to general hygiene protocols  
* ensure that the access road and hardstand area surrounding the WWTP site is surfaced and drained such that water does not pool for long periods, minimising the opportunity for the disease to establish and persist, and ensuring that frog species are restricted to non-anthropogenic habitats in the adjacent | 1/11/2014                                                                                   |
<table>
<thead>
<tr>
<th></th>
<th>forest/natural streams</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>The CEMP [includes] details of washdown of all machinery e.g. excavators, bulldozers before entering the site, particularly if it has previously been located in an area of high risk infection. Washdown is not required for passenger vehicles entering the site provided that the general weed and disease management measures have been implemented and vehicles are restricted to existing roads.</td>
<td>1/12/2014 (During construction)</td>
</tr>
<tr>
<td>20</td>
<td>Assess weeds on the site by the appropriate personnel 6 months after installation of facilities, access tracks and ancillary infrastructure. Where weed infestations are detected, appropriate control measures will be implemented as soon as practical.</td>
<td>1/12/2015 (6 months after construction)</td>
</tr>
<tr>
<td>29</td>
<td>Advise the EPA of any breaches of the permit should these occur as per currently agreed notification and reporting standards.</td>
<td>June 2015 - ongoing</td>
</tr>
<tr>
<td>32</td>
<td>Noise complaints will be monitored and reported to the EPA if required during construction or ongoing operation.</td>
<td>June 2014 – (During construction and ongoing)</td>
</tr>
</tbody>
</table>