Geeveston Outfall Relocation project

Why are we delivering this project?

TasWater has made a commitment to the Environmental Protection Authority (EPA) to increase environmental compliance at 20 sites across the state.

The treated effluent outfall from the Geeveston Sewage Treatment Plant is currently situated in the Kermandie River. Due to poor dilution and dispersion in the Kermandie River the outfall needs to be relocated to deeper water with better dilution and dispersion and ultimately, better environmental outcomes.

Investigations to relocate the Geeveston outfall commenced in 2011, where a location off Shipwrights Point in the Huon River was selected as the preferred location.

Our commitment to undertake alternate investigations

Community and stakeholder engagement took place in 2019 and 2020, however this was only with a small percentage of the community.

In 2022 TasWater re-engaged with the community to inform them of the upcoming project, which had recently completed the design stage. At this time concerns were raised by the Port Huon Progress Association and other members of the community.

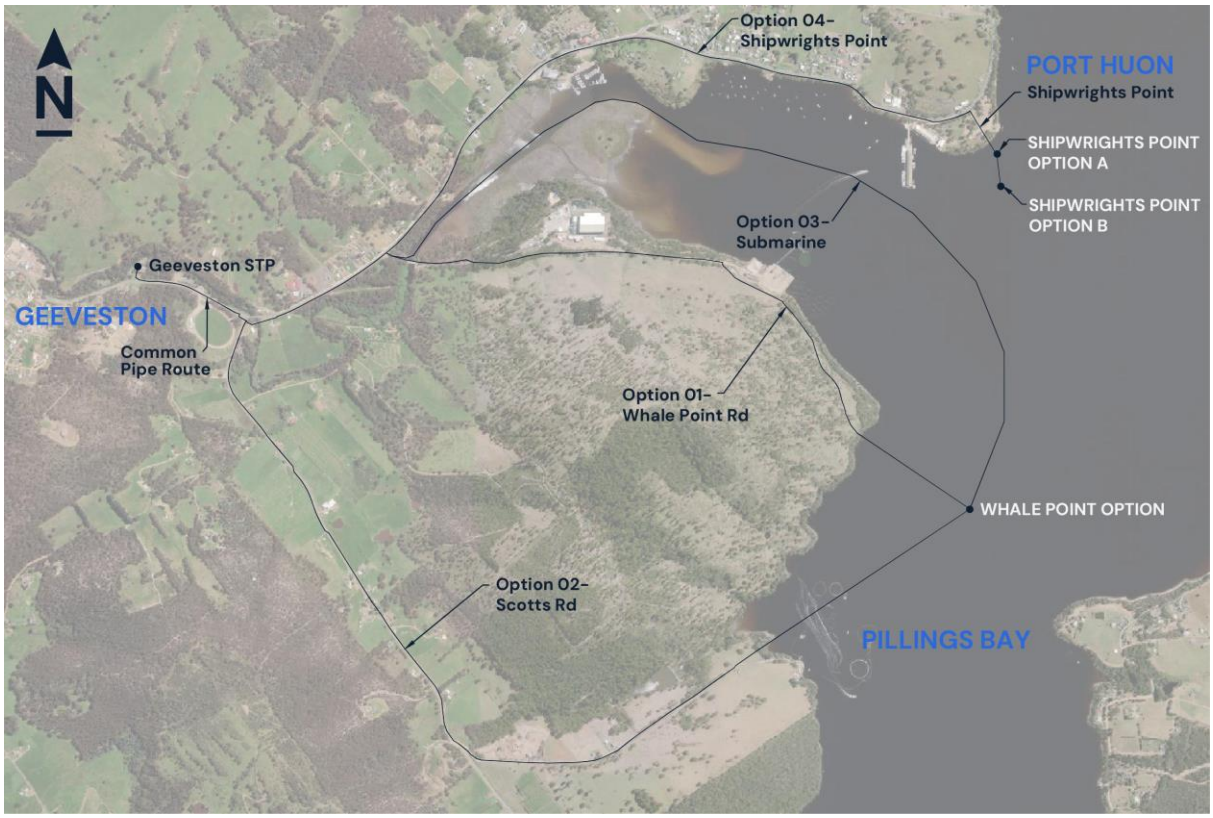
The main concerns raised included:

- The environmental risks to the Huon River – particularly the chlorine
- Risks to human health
- Shipwrights Point is a recreational area, where people swim and enjoy other marine activities
- Lack of community consultation
- Why are we moving the outfall before upgrading the sewage treatment plant?
- The need for outfall signage at Shipwrights Point
- Road closures during construction
- Were other options considered?
- Population growth in the area, will the sewage treatment plant be able to cope?

A commitment was made in early November 2022 to investigate alternate options for the outfall. Since that date, marine and land-based investigations have been carried out at locations at Whale Point, Geeveston.

Alternate investigations

A total of five alternate options have been assessed.



Option	Marine	Land	Comment
Option 1 – Whale Point	480m offshore Depth of 11.5m	Trenching via road and private property Submarine pipeline	Threatened species including the Eucalyptus ovoto, Swift Parrot habitat Aboriginal Heritage Nutrient loading in the river
Option 2 – Scotts Road	480m offshore Depth of 11.5m	Trenching via road and small section of private property Submarine pipeline	Threatened species including the Eucalyptus ovoto, Swift Parrot habitat Aboriginal Heritage Nutrient loading in the river
Option 3 – Submarine	480m offshore Depth of 11.5m	Submarine pipeline from the Kermandie, through Hospital Bay	Irreversible environmental damage from construction Threatened species
Option 4A – Shipwrights A	100m offshore Depth of 9m	Trenching via road Horizontal Directional Drilling under riverbed	Community impact Can avoid Threatened Species with construction along the road
Options 4B – Shipwrights B	260m offshore Depth of 13m Approx 180m further away from recreational area	Trenching via road Horizontal Directional Drilling under riverbed	Community impact Can avoid Threatened Species with construction along the road

Recommendation

A recommended location has been determined based on our assessments, with the location providing the best outcome for the environment.

This recommended location is now be shared with the community for feedback.

Recommended location

Shipwrights Point Option 4B.

- Option 4B at Shipwrights point can provide the best outcome for the environment.
- This location provides the best dilution and dispersion, providing a better water quality outcome.
- Construction of the pipeline is also possible without disturbing any threatened species, or any known Aboriginal heritage.
- There will be no changes to the current recreational use at Shipwrights Point. Locals and tourists will still be able to swim, sail and recreate as they do today.

Q&A's

Why is Shipwrights Point still the preferred location, even though you do not have community support?

Option 4B at Shipwrights Point can provide the best outcome for the environment. This location provides the appropriate dilution and dispersion, providing a better water quality outcome. Construction of the pipeline is also possible without disturbing any threatened species, or any known Aboriginal heritage.

When committing to investigating alternate options, it was stated that an alternate outfall location would only be selected if an equal to or better outcome for the environment could be achieved.

Is your decision now final?

No, this is our recommended option based on the science and outcomes for the environment. Following an update to the community a recommendation will be made to the TasWater Board in April 2024.

Why are you not upgrading the sewage treatment plant?

The quality of the treatment at the sewage treatment plant is not the issue that is impacting the environment. The risk to the environment is due to the location of the current outfall in the Kermandie River. There is an unacceptable risk to the environment due to the poor dispersion of the effluent, especially during the low seasonal river flows.

The outfall relocation is also the first step in a staged approach to sewage management in the area and is necessary to provide data to indicate what future upgrades may be required at the current plant. This project does not prevent TasWater from making further infrastructure and performance upgrades to the Geeveston STP in the future.

The community has referenced the Blackmans Bay Sewage Treatment plant in the past and have asked why an upgrade like this is not taking place.

The upgrade at the Blackmans Bay Sewage Treatment Plant enabled three older STPs at Margate, Electrona and Howden to be decommissioned with sewage pumped to Blackmans Bay for treatment. The upgrade cost $50 million and the new plant services over 40,000 households. The Blackmans Bay STP still has an outfall and an upgrade to the Geeveston STP would not eliminate the need for a marine outfall. The Kermandie River would still not be a suitable location for the outfall due to the poor dispersion.

Why is Whale Point not suitable?

The marine locations at Whale Point will not provide a better outcome for the environment. An option at Whale Point was ruled out due to flows back into Hospital Bay during all tidal movements.

The other options at Whale Point are closer to marine leases – Assessments and studies would need to be undertaken to determine if there is any risk to food safety. Assessments would also need to be undertaken to assess risk caused by the additional nutrient load in the river.

Land based construction at Whale Point posed risks with threatened species and Aboriginal heritage.

Permits can be provided through the EPBC Act to mitigate the threatened species layer, why are you not pursuing this?

This is correct, however due to the known threatened species layer at Whale Point there is an increased risk of impact to the environment. Both the land-based pipeline and submarine pipeline options could impact known threatened species, including the Swift Parrot and Subtropical and Temperate Coastal Saltmarsh.

Evidence of these threatened species indicate an increased risk to the environment which was deemed unacceptable given other risks also identified.

Aboriginal heritage impacts can be mitigated and permits to conduct work can be provided, why are you not pursuing this?

Like threatened species, there is an increased risk we will impact known indigenous artefacts, and this was deemed unacceptable given other risks also identified.

Why is the submersible pipeline at Whale Point not suitable?

The advantage of a submersible pipeline is the cost compared to higher cost solutions like drilling pipelines under the seabed. The disadvantage is that they can have impacts to the seabed, marine users, and marine animals, and therefore can only be used in certain types of applications. There is a risk that during construction irreversible harm could be done to the environment.

Where will the outfall sign be displayed at Shipwrights Point?

The EPA set guidelines and requirement for outfall signage. Signage must be installed and maintained on land near to outfalls to discourage recreational activities within waters around the outfall, in this instance this will be 260 metres offshore. Signage is to alert the public as to the proximity and nature of the discharge.

What will the impacts at Shipwrights Point be?

A large drill rig will be required at Shipwrights Point to install the outfall pipeline. Any impacts to the recreational area will be remediated. Access to the Yacht Club and playground will be always available.

How will the traffic disruptions be managed?

A detailed traffic management plan will be in place, and we will work with State Growth to identify any opportunities to minimise impacts. There will be no full road closures, and during construction if traffic is required to be reduced to one lane, this will be communicated in advance.

The effluent is not safe and will harm marine life and people swimming in the river

- The outfall does not pose any significant risks to marine life or human health.
- The location of the outfall will allow for the effluent dilute and disperse appropriately.

What is the quality of the effluent?

The performance of the Geeveston STP reported in FY22-23 can be reviewed in appendix A. The STP is generally within the Environmental Protection Notice (EPN) limits a majority of the time. These EPN limits are based on treatment type and not what the receiving water can withstand therefor the limits are much lower due to the receiving environment (the Kermandie River).

The elevated levels of E. coli are due to wet weather events – the construction of emergency storage and reduction of stormwater entering the sewer network will improve the way sewage is treated during wet weather event, reducing these elevated levels.

Why can't the effluent be used for reuse?

A reuse study was completed as part of our investigations, however there are no suitable customers in the area who can take the reuse water.

Regardless, an outfall is still required for wet weather flows.

What are you doing about sewage overflows?

This project includes the construction of 80KL of emergency storage, which will allow the network to better manage flows during rain events, when the network is inundated with stormwater.

We are also commencing investigations to keep stormwater out of sewer.

During February 2024 flowmeters will be installed in the sewer network in Geeveston. Analysis will identify locations that require detailed site investigation to identify:

- Properties with incorrect stormwater connections to sewer (via dye testing)
- Above ground assets with defects such as cracked or poorly sealed maintenance hole lids
- Below ground assets that require inspection via CCTV to identify cracked and poor condition pipes / joints that allow groundwater ingress.

We will then prioritise remediation of our assets and work with council and property owners to remove stormwater from sewer. This will result in a reduced volume and frequency of overflow event.

What are you doing about the predicted population growth in the area?

The Geeveston STP is currently operating under capacity. The STP has a hydraulic design capacity of 500k/L daily and the current average daily inflow is 296k/L. We have engaged with the Huon Valley Council regarding the proposed application for a 1200 – 1500 new home subdivision within Port Huon. We have not been able to find any record of this development.

The Development Service team would work with developers to determine what additional infrastructure may be required for future growth.

Planning for infrastructure upgrades includes future growth rates of at least a 30-year design horizon. Once the outfall is installed the ambient monitoring will look at what technology and upgrade to treatment processes are required to maintain a low-risk discharge to the new location taking into account any future development.

Why have these new investigations taken so long, especially given the outcome is not really changing?

Marine studies and environmental assessments take time, we needed to observe the river in different conditions to ensure our decision was well informed. We have outlined the recent investigations below.

Geeveston Outfall Environmental Studies 2023

- 16/1/2023 – engaged Marine Solutions to complete environmental investigation of potential outfall locations off Whale Point. Study and report timeframe 2.5 months as it included a 6-week Acoustic Doppler current profiler (ADCP) deployment, data analysis, bathymetry, laboratory infauna analysis, drogue study.
- 1/2/2023 – EPBC Meeting with Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss the summary of ecological considerations and how we will avoid impacting matters of national environmental significance.
- 27/3/2023 – Marine Solutions report received. Geeveston Whale Point – investigation of alternative outfall location.
- 20/4/2023 – Engaged Marine Solutions to conduct further studies at other sites in the Huon Estuary to identify other potential outfall options as previous Whale Point location not suitable due to circulation back into Hospital Bay.
- 26/5/2023 – Marine Solutions report on alternative outfall options received.
- 7/6/2023 – Engaged Bonneville Consulting to conduct an Environmental Risk Assessment (ERA) on three outfall options.
- 28/6/2023 – Bonneville Consulting ERA received.

- 14/7/2023 – Pipeline route to Whale Point walked and landowner discussions held.
- 19/9/2023 – Extension to the existing DA received.
- 25/9/2023 – JMG engaged for engineering option analysis. ERA engaged for update to the Approvals and Permits Management Plan (APMP)
- 10/10/2023 - Engaged Bonneville Consulting to update chlorine modelling and ERA.
- 1/11/2023 - ERA of alternative outfalls Chlorine DGV Nov 2023.
- 2/11/2023 – Revised Approval and Permits Management Plan completed by ERA Planning and Environment.
- 2/11/2023 – Internal Risk Analysis workshop assessing all potential outfall options.

What has changed?

- Outfall is now deeper off Shipwrights Point (260m)
- Outfall is now further away from Shipwrights Point (180m from original location) & deeper – now 13m (was 9m) – this provides the improved dilution and therefore improved environmental outcomes.
- Pipeline alignment has been moved further off the road where possible, minimising traffic impact.
- EPA Tasmania recommended the chlorine mixing zones for Geeveston STP outfall be remodelled for the draft Default Guideline Value.
- Feedback from the community has been taken into consideration and key stakeholders have been regularly updated throughout our investigations.

Why Geeveston, what are you doing elsewhere?

Marine outfalls are common, not just for TasWater but globally.

We have recently completed two similar projects in Cygnet and Dover where the outfalls have been moved to deeper waters to improve the outcomes for the environment.

The Cygnet Outfall Relocation project involved the outfall moving from the Port Cygnet Conservation Area to deeper waters, 150 metres offshore from Crooked Tree Point. This location was selected following marine assessments which identified this location as providing optimal dilution and dispersion.

The Dover Outfall project involved us replacing the existing outfall which was no longer acceptable and was damaging the local environment. The new outfall extends 340 metres beneath Port Esperance – more than twice as far as the old outfall. This location provided better mixing and dilution, therefor improved outcomes for the environment.

Long term strategy

We understand that a healthy environment is essential to supporting thriving communities.

That's why we are committed to protecting and regenerating our natural environment and embedding sustainable practices across all our activities.

We have a unique and intimate relationship with the environment, that involves taking water from rivers, lakes and aquifers and later discharging by-products from our sewage treatment plants back to the environment. Our activities consume large amounts of energy. Consequently, our four major long term environmental objectives are to:

- reduce the amount of water we extract from the natural environment
- eliminate nutrients discharged into waterways and oceans by 2050
- achieve net zero Scope 1 and 2 greenhouse gas emissions, and
- eliminate waste by transitioning our operations to a circular economy.

24 Geeveston STP

24.1 Activity and report details

Activity name	Geeveston STP		
Activity address	Huon Highway, Geeveston		
Permit number	Licence to Operate – 3625	**Date of issue**	8/12/1992
EPN	8536/1	**Date of issue**	31/01/2013
Treatment level	Secondary Treatment		
Authorised Dry Weather Flows	300 kL/day		
Key Influent Source	Residential		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 24-1: Geeveston Sewage Treatment Plant

24.2 Monitoring and compliance summary

24.2.1 Flow data

Table 24-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Kermandie River	No reuse scheme
Coordinates	E 494803 N 5220964	E 494804 N 5221009	NA
Method of Measurement	Level Sensor	Level Sensor	NA
Date of last Calibration/Validation (if applicable).	6/08/2022	6/08/2022	NA

Table 24-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 94268	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	401	55.8	12.97	--
August 2022	865	177.6	26.40	--
September 2022	440	61.0	14.04	--
October 2022	352	97.2	15.34	--
November 2022	382	86.4	11.10	--
December 2022	239	49.0	9.77	--
January 2023	187	15.0	7.24	--
February 2023	267	65.4	11.69	--
March 2023	267	60.4	8.83	--
April 2023	244	42.8	6.73	--
May 2023	316	87.8	8.21	--
June 2023	452	128.6	13.57	--
Annual 2022-23	368	927.0	145.88	0.00
% of Total Discharge	--	--	100.0%	0.0%

2022-23 monthly flow data was submitted directly to the EPA.

24.2.2 Bypass events

Table 24-C : Bypass events summary

Bypass ID:	GEEST01-ON				
Bypass description:	Inlet pump station overflow to outfall				
Treatment bypassed:	Secondary Treatment, Disinfection (Chlorine)				
Treatment level of impacted effluent:	Screened				
Flows exceeding:	19 L/s (Approximate)				
Discharge location:	Kermandie River: 494804.63E, 5221009.4N (GDA94)				
Start date / time	**End date / time**	**Duration**	**Volume estimate**	**Cause**	**Response actions**
14/08/22 04:28	16/08/22 01:32	45.1 h	2146 kL	14/08/22 04:28	16/08/22 01:32
22/08/22 06:21	22/08/22 09:21	3.0 h	112 kL	22/08/22 06:21	22/08/22 09:21
27/10/22 22:49	28/10/22 14:52	16.1 h	1081 kL	27/10/22 22:49	28/10/22 14:52
13/12/22 17:28	13/12/22 18:38	1.2 h	46 kL	13/12/22 17:28	13/12/22 18:38
26/02/23 03:37	26/02/23 03:47	0.2 h	1 kL	26/02/23 03:37	26/02/23 03:47

24.3 Discharge compliance with permit limits

Table 24-D: Compliance Summary

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100ml	mg/L
Maximum	19	15	1.0	24	10	8.5	5.5	200	25
90th percentile	--	--	--	--	--	--	--	--	--
50th Percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	12	12	12	12	12	12	12
Number analysed	12	12	12	12	12	13	12	12	12
Statistical summary									
Max	8.0	22	1.64	20.2	1.0	7.8	7.0	24196	30.0
90th percentile	6.7	16	1.52	14.2	1.0	7.7	2.8	2073	12.2
50th percentile	3.4	6	0.94	12.1	1.0	7.4	1.3	10	9.7
Min	0.1	5	0.12	8.6	1.0	6.8	0.5	10	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	83%	67%	100%	100%	--	92%	83%	92%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	100%	--	--	--

Table 24-E: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	1752.1
Phosphorous (kg)	--	Annual	233.6
Method	Flow weighted/Composite method		

Table 24-F: Performance Analysis (Discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
E. coli	14/09/2022 27/10/2022	Wet weather event caused elevated flows and reduced disinfection efficacy. Instances of elevated chlorine typically are a result of the limited automated chlorine control. The variability in effluent quality from the secondary treatment process is also believed to impact the consistency disinfection performance.	Minor mechanical reliability improvements to the chlorine dosing system.
Chlorine	10/08/2022 24/11/2022 19/01/2023 07/03/2023		
Phosphorus	23/02/2023	The process is not specifically designed to remove phosphorus. Instances of elevated TSS and BOD occurred during wet weather events. High flows cause solids carry over from the solids separation leading to TSS and BOD exceedances.	No improvement actions taken.
TSS	24/11/2022	Instances of elevated TSS and BOD occurred during wet weather events. High flows cause solids carry over from the solids separation leading to TSS and BOD exceedances.	No improvement actions taken.
BOD	27/10/2022 24/11/2022		

No other parameters had exceedances in the reporting period.

24.4 Reuse Annual Reporting

No recycled water scheme associated with this STP.

24.5 Ambient monitoring program

Table 24-G: Program details

Program	Not applicable
Status	No ambient monitoring undertaken during reporting period.
Update	Not applicable
Comments	Geeveston Outfall Relocation Project currently on hold while alternative outfall locations are assessed. A post new outfall commissioning ambient monitoring plan will be implemented upon project completion.

24.6 Groundwater monitoring

No groundwater monitoring bores associated with this STP.

24.7 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration Management Plan includes details of the actions undertaken statewide to address I&I issues. Update to the actions completed will be provided in the next revision due September 2024.

A Multi Criteria Assessment was undertaken by TasWater in 2022 to prioritise I&I investigation and works state-wide. This catchment was ranked 9 out of 79 in priority (high).

24.8 Sludge and Biosolids

There are no sludge/biosolids dewatering facilities at this site, with sludge transferred via liquid sludge transport to Ranelagh STP. The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the actions undertaken during the reporting period, the most recent sludge profiling results, and upcoming annual desludging program.

This STP was fully compliant with the 2022-23 SSMP.

No stockpiling occurs at this site.

24.9 Non-compliance with other permit requirements

Table 24-H: EPN non-compliances

EPN Condition	Description of non-conformance	Future Actions to be taken
EF3 Effluent discharge limits to Kermandie River	Discharge compliance with permit limits	See section 24.3 Discharge compliance with permit limits and Performance Analysis.
EM4 Discharge Management Plan	Discharge Management Plan overdue	Submission timeframe TBC. Plan in development for DMP submission dates following on from agreed format between TasWater and EPA.

EPN Condition	Description of non-conformance	Future Actions to be taken
OP1 Operational Procedures Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented by FY2024.
G7 Bypass Report	Not submitted	EPA have indicated that commissioning of the new Geeveston STP outfall, and the flows it will pass, will be sufficient to address this non-compliance.

24.10 Complaints and incident reporting

No complaints received during 2022-23 reporting period.

Table 24-I: Incident Reporting

Date	Category	Details	Mitigation actions
23/09/2022	Process issue	Operators detected low chlorine when analysing trends. Upon further inspection, it was determined there were no issues with the chlorine dosing system. No air locks were observed and the system has automatic de-gassers installed.	Reporting requirements have been clarified and SD have requested OC call out the operator on-call when chlorine level drops below 0.30ppm for a sustained period (longer than 30 mins)

24.11 Any other relevant information

Table 24-J: Projects or significant operational events that occurred in FY 2022-23:

Project or significant operational event	Progress
Geeveston Outfall Relocation Project	Project on hold. EPA and Huon Valley Council approval received for DA and PCE issued for Shipwrights Point outfall option. Alternative outfalls being assessed given community concern of the current approved location.

For further information on Geeveston STP please contact TasWater on 13 6992

www.taswater.com.au