

Stormwater System Management Plan

73 Greenbanks Road

Prepared for
Cam Nelson

Client representative
Cam Nelson

Date
11 March 2025

Rev01

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1. Introduction

Dame Technologies are proposing to develop a utilities infrastructure facility at 73 Greenbanks Road, Bridgewater . Brighton City Council require a Stormwater Management Plan to support the proposed development.

This report, referred to as a Stormwater Management Plan (SWMP), has been prepared in accordance with the Tasmanian Planning Scheme, which has been adopted by Brighton City Council. While the scheme does not specifically address stormwater management, several Tasmanian Local Government Authorities, the Local Government Association of Tasmania (LGAT), and the Derwent Estuary Program have developed the Tasmanian Stormwater Policy Guidance and Standards for Development, which will form the basis of this SWMP. The SWMP aims to develop a surface water strategy to reduce the impact on natural values, infrastructure, and properties within the catchment area.

The Stormwater Management Plan (SWMP) will include:

- A description of flow paths, stormwater infrastructure and catchments on the site
- Demonstrate a suitable water sensitive urban design for treatment of stormwater runoff; and
- Suggest suitable treatment options and products that could be used.

1.1 Planning controls

The Tasmanian Stormwater Policy Guidance and Standards for Development, developed by LGAT and the Derwent Estuary Program, outlines requirements for managing stormwater in development projects. This SWMP aims to demonstrate that the proposed development can effectively manage stormwater on-site, with a focus on stormwater quantity and quality management.

The key requirements for stormwater management are summarized in Table 1.

Table 1: Planning Requirements

Section	Description	Requirement
2.4.1 – Table 3	Water Quality Treatment Targets	<div>1. 90% reduction in the average annual load of litter/gross</div> <div>2. pollutants based on typical urban stormwater concentrations; AND</div> <div>3. 80% reduction in the average annual load of total suspended solids (TSS) based on typical urban stormwater TSS concentrations; AND</div> <div>4. 45% reduction in the average annual load of total phosphorus (TP) based on typical urban stormwater TP concentrations; AND</div> <div>5. 45% reduction in the average annual load of total nitrogen (TN) based on typical urban stormwater TN concentrations</div>
2.5.1	Stormwater Disposal Requirements	<div>1. Stormwater must be disposed of by gravity to the Council stormwater system where practicable. This is the default position in urban areas.</div> <div>2. Where a Council stormwater system is unavailable stormwater may be disposed of onsite to the satisfaction of Council.</div> <div>3. New stormwater outfalls into river streams or other water bodies must follow the requirements of the C7.0 Natural Assets Code section P3 of the TPS.</div> <div>4. Each lot will typically have one property connection only</div>

The Tasmanian Stormwater Policy Guidance and Standards for Development does not specify a specific design event for detention basin assessments. Therefore, Brighton Council was consulted and confirmed that a 2% AEP (Annual Exceedance Probability) event is to be used for this development. Refer to Appendix C for the advice provided by Council.

1.2 Site description

1.2.1 Existing Site

The site, located at 73 Greenbanks Road within the Brighton Industrial Precinct, is currently vacant. Figure 1 illustrates the existing site layout.

The site elevation ranges from approximately 45m AHD to 40m AHD, sloping eastward toward the existing access road. Positioned about 40 meters south of a hill crest, the site is expected to receive minor external catchment runoff directed towards it.

An existing stormwater connection point is located just outside the site's north-western boundary, within the Greenbanks Road cul-de-sac. This connection is proposed for drainage.



Figure 1: Existing Site

The existing site geology comprises Dolerite. A map of geology for the site and the immediate surrounding area is presented in Figure 2.

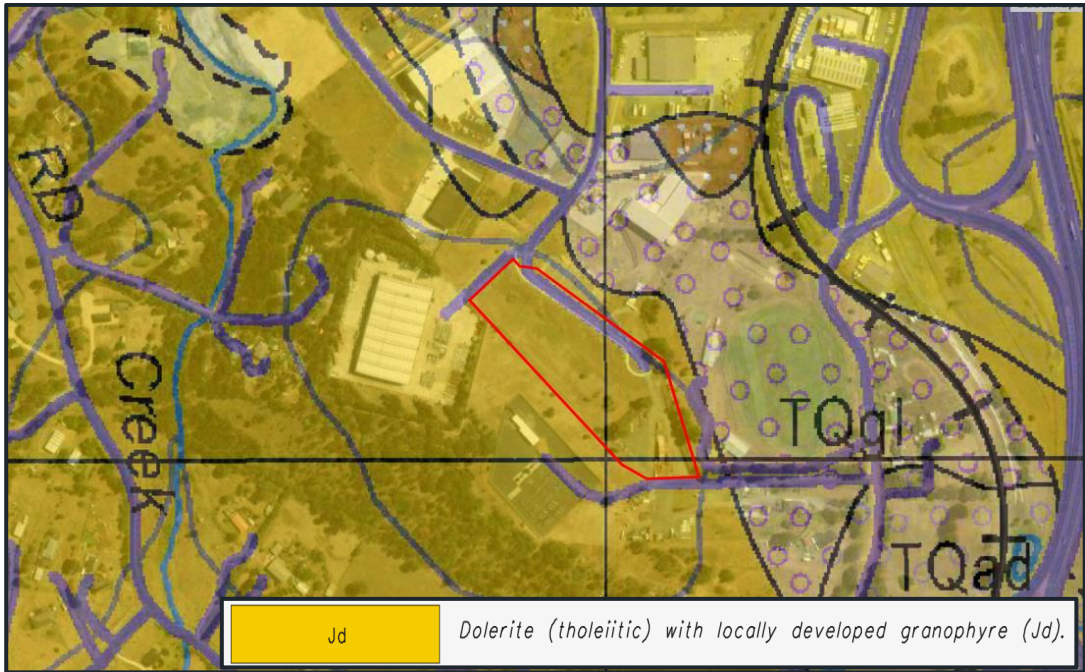


Figure 2: Site Geology

1.2.2 Proposed Use

The proposed development is to be utilised for a data centre with several pods, a site shed, site office, parking area and circulation road within the site. The pods, which will be enclosed by bunding, will have self-contained drainage systems and will not be connected to the stormwater network outlined in this report. The schematic design general arrangement for the site is presented in Figure 3.

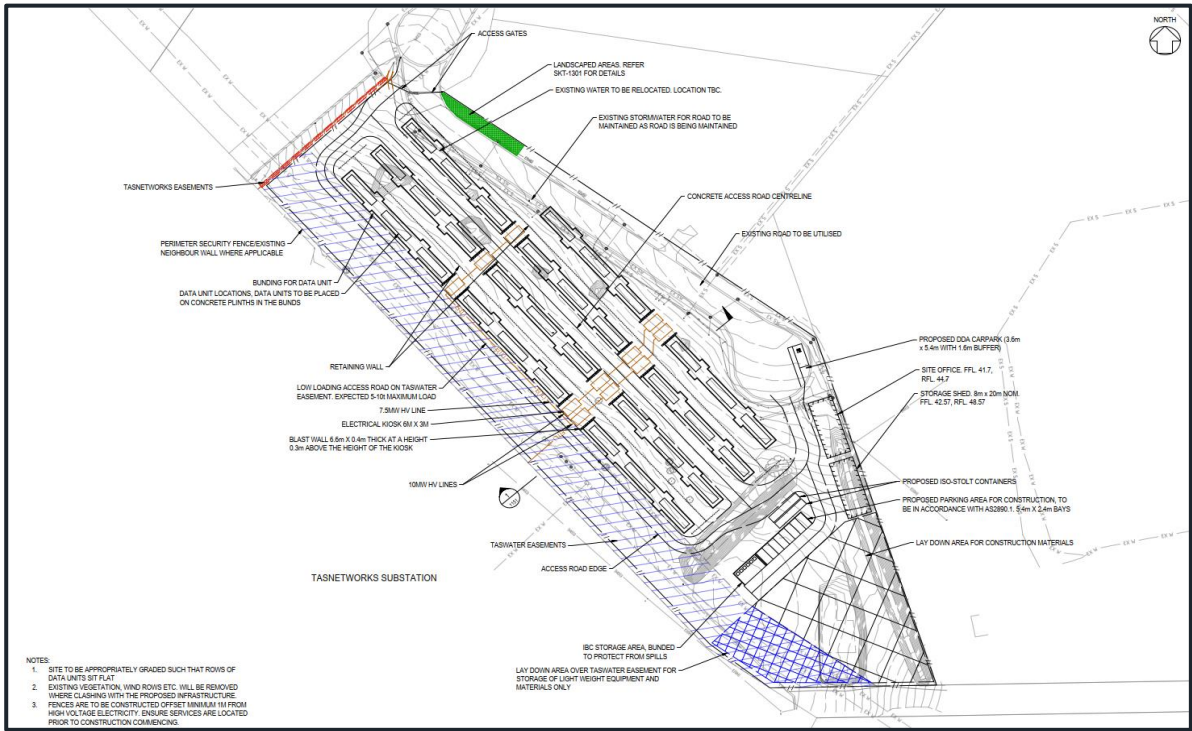


Figure 3: Proposed Use

2. Hydrologic / hydraulic assessment

Hydrologic / hydraulic assessment

A hydrologic / hydraulic assessment has been undertaken to suitably size stormwater infrastructure within the proposed development, ensure overland flows are appropriately managed and to size a suitable stormwater detention system. The hydrologic / hydraulic assessment has been carried out in the software package DRAINS. The following decisions / assumptions were made for the development of the model.

- Analysis undertaken in accordance with guidance and principles outlines in *Australian Rainfall and Runoff 2019*, most notably, the assessment has included an assessment of temporal variation which is considered to be the best practice approach for hydrologic assessment
- Rainfall IFDs and rainfall losses extracted from the following coordinates:
 - Latitude: -42.723
 - Longitude: 147.232
- Median pre-burst depths have been adopted
- An Initial Loss/Continuing Loss model is adopted. The following values have been adopted from ARR Data HUB:
 - Pervious Area Initial Loss: 10mm
 - Pervious Area Continuing Loss: 2mm/hr
 - Impervious Area Initial Loss: 1mm
 - Impervious Area Continuing Loss: 0mm/hr
- Southern Slopes (Tas) Temporal Patterns were adopted
- Both an existing condition and proposed development case have been assessed
- Catchment delineation for the developed case is based on the development concept design
- Existing condition assumed to be 95% pervious and 5% of indirectly connected impervious area
- The 2% AEP storm has been assessed for the minor drainage system (including detention basin) and the 1% AEP event for the major system and overland flows; and
- Climate Change factor adopted for both the minor and major system on the advice of Council is 16.6%.

Figure 4 and Figure 5 illustrate the layout of the DRAINS model, which includes two separate underground piped drainage networks. One network collects stormwater and directs it to a detention storage area along the site's eastern boundary, while the other discharges stormwater to the west without detention. Water quality management systems will be installed at both locations.

It is important to note that the existing drainage and access road have not been included in the assessment, as confirmed in Appendix B, where Council has verified that their inclusion is not required. Hence, the total area evaluated is 1.7778 ha, as the road is excluded. Both discharge points will connect to the private network and flow into the existing legal point of discharge on Greenbanks Road. A detailed plan of the proposed drainage system is provided in the schematic design drawings.

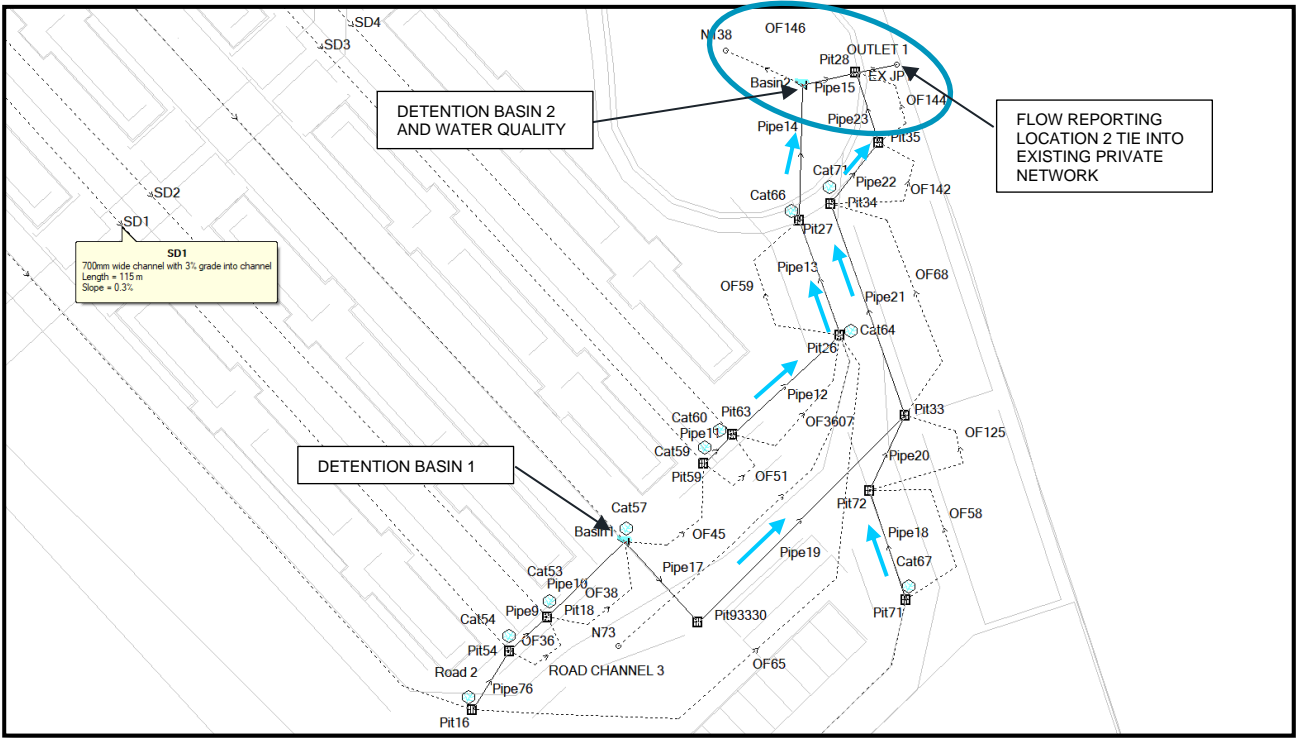


Figure 4: DRAINS model Layout

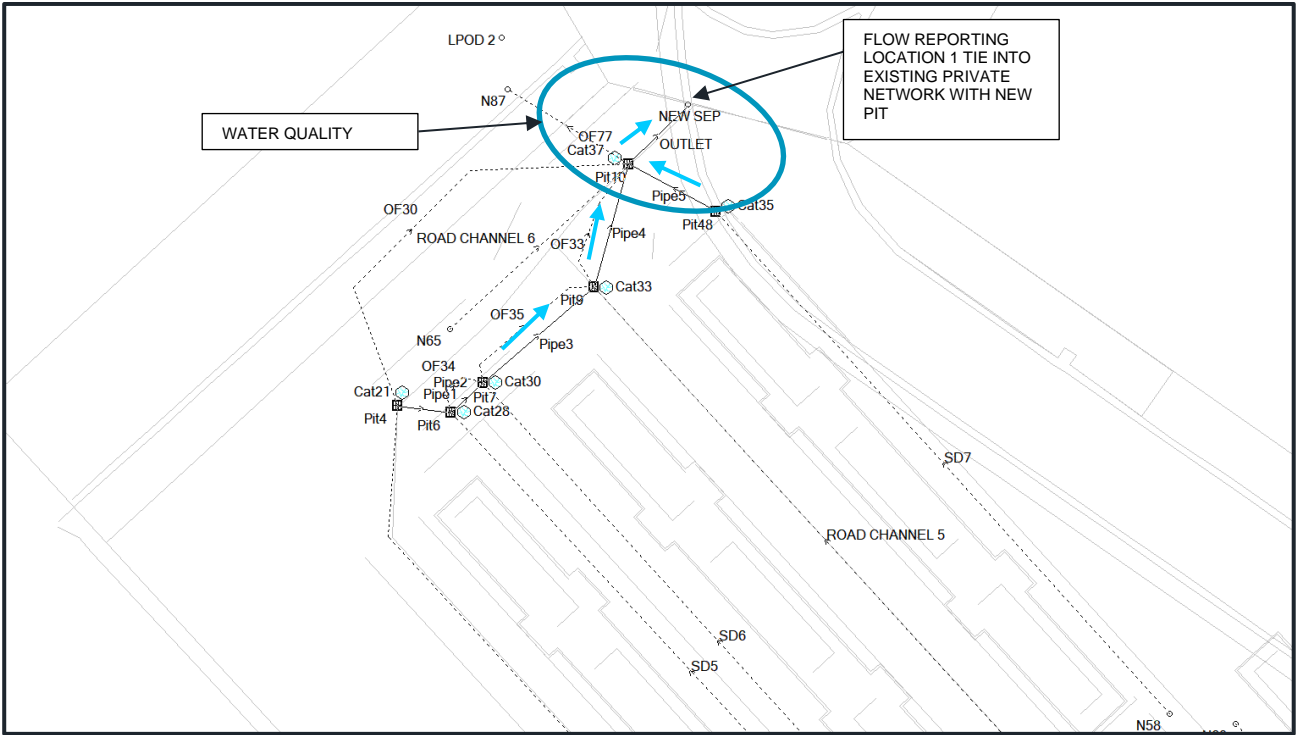


Figure 5: DRAINS model Layout



As presented in Table 2: Peak Flow Rates without detention, for the existing condition, the total site peak flow rate



9. *Journal of the American Medical Association*, 2000; 283: 2689-2693.

- **Two basins** are used in the configuration due to space constraints within the stormwater network. Basin one will include eleven (11) SPEL vaults (SPEL Precast Concrete Tank VAU.5023-950) with a capacity of 9.577 kL per vault, providing a total volume of 105.3 m³. Basin 2 will include seven (7) SPEL vaults (SPEL Precast Concrete Tank VAU.5023-950) with a capacity of 9.577 kL per vault, providing a total volume of 67.0 m³. Together, the basins have a combined total volume of 172.3 m³. Each unit measures 5 m by 2.36 m, with an overall height of 0.95 m
- **Each unit** measures 5 m by 2.36 m, with a total height of 0.95 m; and
- Basin 1 will have a 200 mm orifice at the outlet, while Basin 2 will require a 250 mm orifice at the outlet.

The stage-storage relationship of the proposed detention structure is presented in Figure 10 and Figure 11.

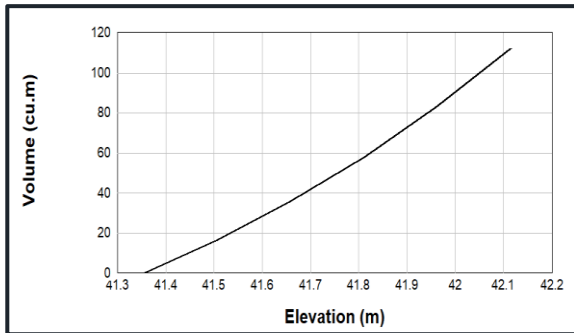


Figure 10: Detention Basin 1 Stage-Storage Relationship

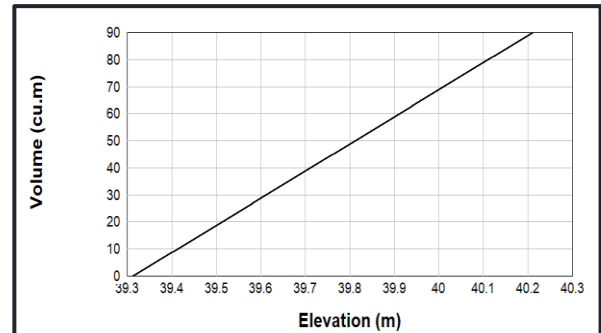


Figure 11: Detention Basin 2 Stage-Storage Relationship

The flow hydrograph for the developed condition, with a detention basins included, is presented in Figure 12 and Figure 13.

This demonstrates that the detention basin can attenuate flows to predeveloped condition for the 2% AEP.

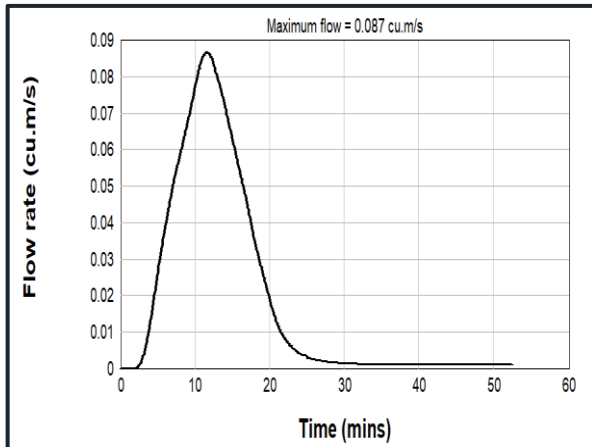


Figure 12: Developed Condition tie-in location 1

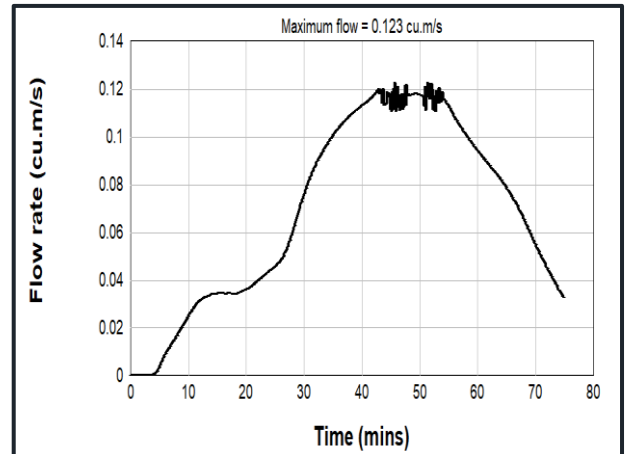


Figure 13: Developed Condition tie-in location 2

Table 3 presents design flow rates and compares them to the existing case, highlighting flow rate changes.

Table 3: Total Site Peak Flow Rates with detention

Location	2% AEP	% Decrease	1% AEP	% Decrease
Catchment outlet	0.210m ³ /s	27.3%	0.202m ³ /s	25.3%

3. Water quality assessment

To demonstrate the development can manage water quality, a MUSIC model has been developed. The following assumptions and model parameters have been adopted.

- Three land use nodes have been adopted to represent the developed area. All nodes represent pavement surface. Typical pollutant load generation from these two surface types has been adopted
- Daily rainfall data for rainfall station at Mount Dromedary (094214) for the years from 01/01/1999 to 09/12/2024 has been adopted for the assessment. The data was collected from the BOM Climate Data website. The dataset is a complete set of high-resolution rainfall which provides a representation of rainfall over a long period of time; and
- The model assumes the site is 100% impervious. As such, parameters related to pervious areas are not relevant for this assessment.

A layout of the MUSIC model is presented in Figure 14

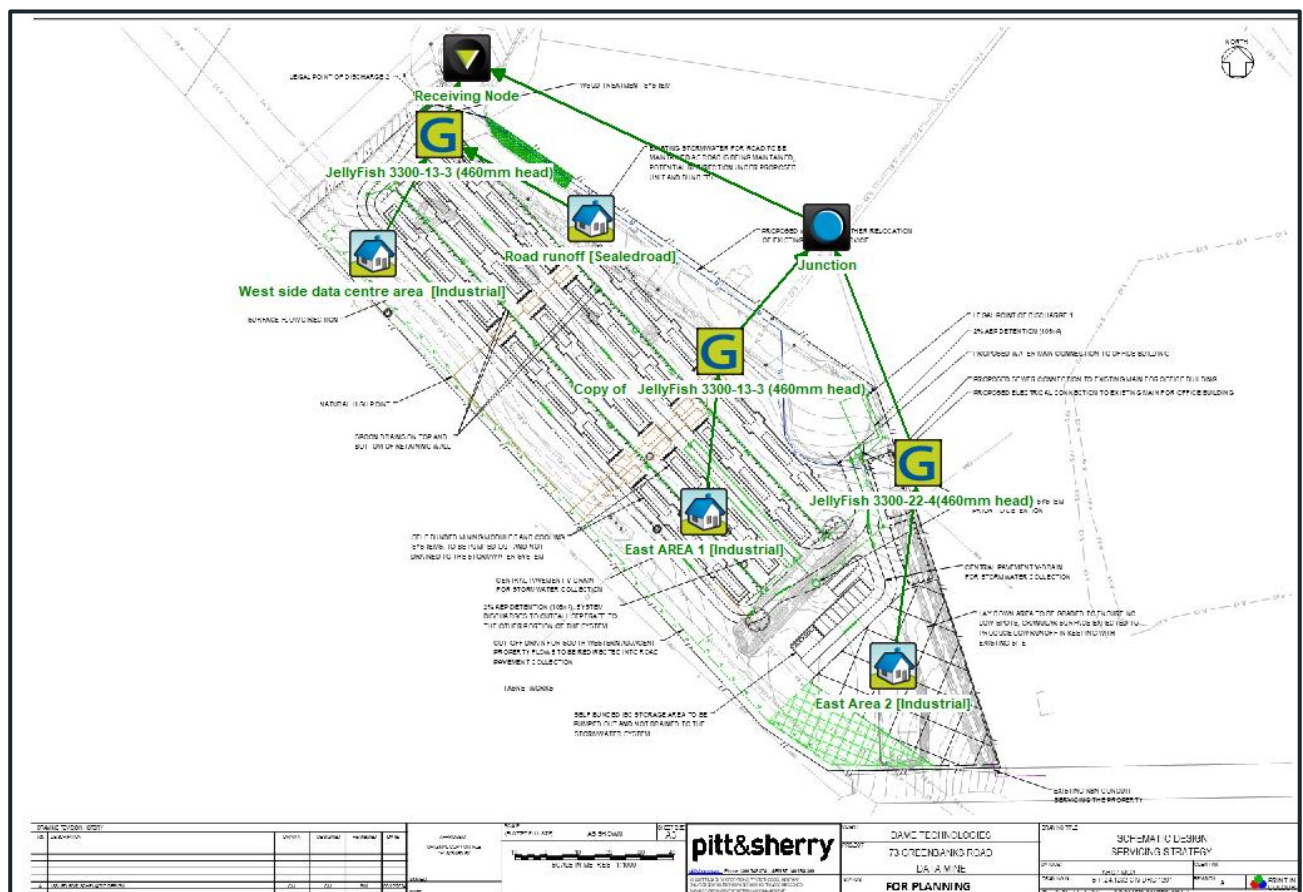


Figure 14: Music Model Layout

A range of stormwater treatment measures were assessed, an Ocean Protect Jellyfish filter has been ultimately selected for the following reasons:

- The total catchment size, 2.02 ha for the LPOD, indicates that both proprietary devices and bioretention basins could be suitable options
- A review of the space available for suggests installing a bioretention basin may not be possible; and
- Several proprietary stormwater treatment devices were assessed although many common devices were not able to achieve the required pollutant load reduction for total nitrogen.

Produce brochures for the proposed stormwater treatment measures are provided in Appendix A.

For this assessment, Ocean Protect products have been selected. It is noted that other manufacturers provide similar products that can achieve the same outcome.

The anticipated treatment train effectiveness for the proposed water quality management measures at LPOD is as follows:

Table 4: Treatment Train Effectiveness LPOD

	Sources	Residual Load	% Reduction
Flow (ML/yr)	8.08	8.08	0
Total Suspended Solids (kg/yr)	1630	114	93
Total Phosphorus (kg/yr)	2.72	1.17	57
Total Nitrogen (kg/yr)	18.3	9.17	50
Gross Pollutants (kg/yr)	308	3.08	99

4. Discussion and conclusion

Measures to ensure that stormwater quality and quantity is managed on the site have been recommended including:

- Two stormwater detention structures within the lot. The detention structures provide an approximate total of 172.3m³ of storage and can sufficiently attenuate flows to predeveloped conditions for the 2% AEP
- A formal pit and pipe drainage systems services the proposed development
- Three Ocean Protect Jellyfish filters are recommended for management of gross pollutants. The gross pollutant traps must be able to treat a peak flow of 87 L/s, 83L/s and 108 L/S to achieve the require pollutant load reduction target; and
- All stormwater is directed to existing legal point of discharge connection at west of the site.

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Stormwater Management Devices

Appendix A

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Jellyfish[®] Filter

Technical Design Guide



Stopping Pollution Entering Waterways



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Introduction

The Ocean Protect Jellyfish® is a compact, below ground stormwater treatment device, configured offline to capture pollutants in stormwater run-off. The Jellyfish® Filter uses high flow rate membrane filtration at low driving head with a large surface area to filter stormwater. By incorporating pre-treatment with light-weight membrane filtration, the Jellyfish® removes floatables, litter, oil, debris, TSS, fine silt-sized particles, and a high percentage of particulate-bound pollutants; including phosphorus, nitrogen, metals and hydrocarbons. The large surface area membrane cartridges, combined with up flow hydraulics, frequent backwashing, and rinsable/reusable cartridges ensure long-lasting performance.

Operational Overview

During a storm, the upstream bypass structure directs low flows to the Jellyfish®. The system builds driving head, traps floating pollutants behind the Maintenance Access Wall (MAW) and drives flow below the cartridge deck where a separation skirt around the cartridges isolates oil, litter and debris outside the filtration zone. As a result of the upstream driving head, water is conveyed up from the treatment chamber through membrane tentacles where filtration occurs, retaining solids and other pollutants, before entering the back wash pool above. Once the water has filled the backwash pool, water overflows the weir and exits via the outlet pipe.

Once the rain event subsides, flow direction reverses such that the water in the backwash pool flows back into the lower treatment chamber. This passive backwash drops out some of the attached solids and extends cartridge life, assisting in preparing the system for the next rainfall event.

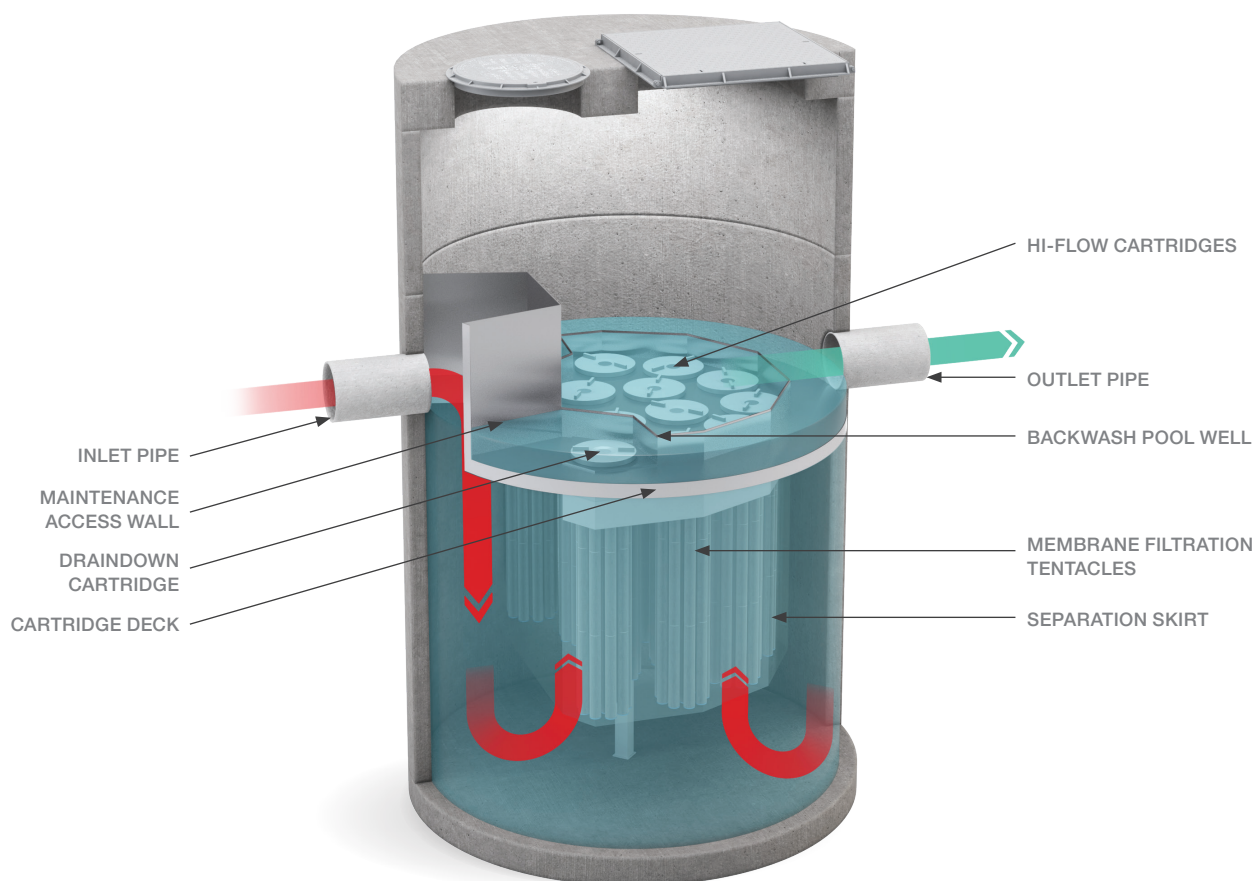


Figure 1: Jellyfish® operation

Features

Each Jellyfish® system consists of the following internal components:

- Maintenance Access Wall (MAW)
- Separation Skirt
- Filtration Zone (High-flow cartridges)
- Backwash Pool
- Drain-down cartridges

The Maintenance Access Wall creates an inlet zone for the stormwater inlet pipe. It allows for the dissipation of flows and capture of floatable pollutants whilst reducing the quantity of coarse material, solids and debris entering the Filtration Zone. The Separation Skirt provides further protection of the cartridges from coarse materials and hydrocarbons.

The High-flow and draindown cartridges are offered in a 1375mm length. Each cartridge consists of multiple pleated membranes referred to as "tentacles" that are washable and re-usable. The group of tentacles within every cartridge creates a large cumulative surface area membrane - and with a peak flux rate of 0.14L/s/m^2 , it provides the most compact footprint available on the market.



Figure 2: Jellyfish® tentacle components

There are three (3) hydraulic loss options for the Jellyfish® system. Typically, 457mm of hydraulic loss is adopted, however for lower drop sites, the designed hydraulic loss can be reduced to 305 or 229mm. The flow rates, head loss, and head drop for each system are shown in *Table 1* below.

Hydraulic Loss (mm)	Cartridge length	High flow cartridge flow rate (L/s)	Drain Down cartridge flow rate (L/s)
457	54-in (1.37m)	5	2.5
	27-in (0.686m)	2.5	1.3
305	54-in (1.37m)	3.34	1.96
	27-in (0.686m)	1.68	0.98
229	54-in (1.37m)	2.52	1.58
	27-in (0.686m)	1.27	0.79

Table 1: Jellyfish® cartridge details

Configurations

The Jellyfish® treatment system can be housed in a variety of ways such that it suits the site specific requirements for flowrate, hydraulics, accessibility and footprint restrictions. The standard configuration offered by Ocean Protect is pre-cast concrete manholes. These systems are simple to install, as they arrive on site after being manufactured offsite to suit site specific requirements (pipe size, inlet/outlet orientation, levels etc.). Larger precast or cast-in-place Jellyfish® Filter vaults are available to treat higher flows. Pre-cast Manhole Jellyfish® Filter systems are pre-configured (pipe size, location, unit height etc.) prior to arrival upon site for ease of installation.



Figure 3: Jellyfish® precast manhole



Figure 4: Jellyfish® vault

Performance and Select Approvals

While laboratory testing provides a means to generate hydraulic and basic performance data, all filtration devices should also be complemented with long-term field data evaluations. As a minimum, field studies should generally comply with a recognised field testing protocol, for example, the Technology Acceptance Reciprocity Partnership (TARP) or the Technology Assessment Protocol – Ecology (TAPE) in the USA.

To be considered valid, all field monitoring programs should be peer reviewed by a reputable third party and replicate local pollutant concentrations including soluble fractions of nutrients together with rainfall. Such field testing has been undertaken for the Jellyfish® – both locally in Australia and overseas. Further information on these studies is available in *A review of the application of Jellyfish® in Australia*.

Since 2017, over 1700 Jellyfish® have been installed within Australia by Ocean Protect. These assets have been successfully installed in a variety of applications to meet regulatory requirements set by authorities throughout Australia.

Specifically, Jellyfish® has been accepted by some of the most stringent stormwater quality regulators around the globe including:

- Stormwater Australia Quality Improvement Device Evaluation Protocol (SQIDEP) verification
- Brisbane City Council
- Wollondilly Shire Council
- Campbelltown City Council
- Blacktown City Council
- Hobsons Bay City Council
- City of Port Adelaide Enfield
- City of Hobart
- Washington State Department of Ecology (TAPE) GULD – Basic
- New Jersey Corporation of Advanced Technology (NJCAT)
 - » Field Performance per TARP Tier II Protocol
- Canada ISO 14034 Environmental Management – Environmental Technology Verification (ETV)

Please contact your Ocean Protect representative to obtain the Jellyfish® approval status in your area.

Maintenance

Every filtration device will eventually need routine maintenance. The question is how often and how much it will cost. Proper evaluation of long-term maintenance costs should be a consideration when selecting a manufactured treatment device.

Jellyfish® cartridges are lightweight and reusable and minor maintenance of the filter cartridges is performed by removing, rinsing and reusing the cartridge tentacles. Vacuum extraction of captured pollutants in the sump is recommended at the same time.

Full cartridge replacement intervals differ by site due to varying pollutant loading and type, and maintenance frequency and replacement is anticipated to be every 2-5 years.

Maintenance support

Ocean Protect provides flexible options and contract terms. A detailed maintenance guide and mass load calculation spreadsheet is available upon request.

For further information please refer to the *Jellyfish® Operations and Maintenance Manual*.

Design Basics

The design requirements of any Jellyfish® system is detailed in 3 typical steps:

- 1 Hydraulic Design
- 2 Water Quality Design
- 3 Mass Load Design

1 Hydraulic Design

All Jellyfish® systems must be designed to ensure that the hydraulic requirements of the system are met without adversely impacting the upstream hydraulics (limiting the likelihood of localised flooding). *Table 1* (page 5) details the available head loss options. **The designer must initially select an option and ensure the corresponding head loss can be catered for.**

A Jellyfish® system is typically designed 'offline' so that treatment flows are directed to the Jellyfish tank and higher flows are bypassed via an upstream weir or raised pipe. The upstream diversion arrangement is used to create the head loss required above the outlet IL of the Jellyfish unit (*see Table 1*). Please note that the standard arrangement for a Jellyfish allows for a flexible height difference between the inlet and outlet but is typically set at 150mm.

Jellyfish® cartridges have a unique backflush mechanism that is passively activated at the end of each storm to increase the longevity of each cartridge. Consequently, captured pollutants are stored within the system and in order to minimise scour peak flows into the treatment chamber need to be limited. Specifically, when **peak flows surpass the combined cartridge treatment flow rate the system needs to be arranged off-line** with a low flow splitter designed upstream.

It is also necessary to consider the impacts that tail water/submergence has on all stormwater treatment devices. In the case of the Jellyfish®, tailwater can adversely affect the long term cartridge operation. As such measures should be implemented during design to ensure that the system can operate effectively. If this cannot be achieved on your project an alternative treatment option, such as StormFilter®, is recommended. Please contact Ocean Protect for advice and complimentary design advice.

2 Water Quality Design

Ocean Protect uses the widely endorsed Model for Urban Stormwater Improvement Conceptualisation (MUSIC), which makes it easy to correctly size an appropriate Jellyfish® system for your site.

A complimentary design service which includes MUSIC modelling is provided by the Ocean Protect engineering team. Simply email your project details to design@oceanprotect.com.au or alternatively you can always call one of our engineers for a discussion or to arrange a meeting in your office. The team will provide you with an efficient design containing details of the devices required to meet your water quality objectives together with budget estimates, product drawings and the MUSIC (.sqz) file.

When designing/modelling a Jellyfish® system for water quality purposes in MUSIC, a single generic treatment node is utilised. The generic treatment node is utilised with relevant removal efficiencies inserted. These parameters can vary based on the jurisdiction (authority) of your project, relevant details can be obtained from Ocean Protect. The high-flow bypass figure is adjusted within the node to represent the treatable flow rate required to obtain water quality targets. Once finalised this figure can be matched with the system flow rates provided in *Appendix 1*.

All details such as drawings, specifications and maintenance manuals can also be downloaded from www.oceanprotect.com.au for integration into your project's documentation. Additionally, the Ocean Protect team is available to review your model and provide additional assistance and guidance on the configuration of the Jellyfish® system(s) for your project.

3 Mass Load Design

At the completion of your water quality design process (as above), it is necessary that maintenance frequency is considered in order to prevent excessive ongoing maintenance requirements. Ocean Protect recommends a minimum minor maintenance frequency of 6 months (rinsing) for the Jellyfish®.

All filtration devices occlude overtime, consequently they have a maximum sediment capacity (TSS load). By analysing the mean annual load figures for the Jellyfish® generic treatment node, the total annual retained TSS can be determined. To determine the minimum cartridge quantity required by mass load design, the annual retained TSS should be divided by the relevant cartridge sediment capacity. The Ocean Protect team can provide assistance and details on this process.

In determining the final cartridge quantity for your project, you must utilise the largest number of cartridges obtained from undertaking Water Quality and Mass Load design steps.

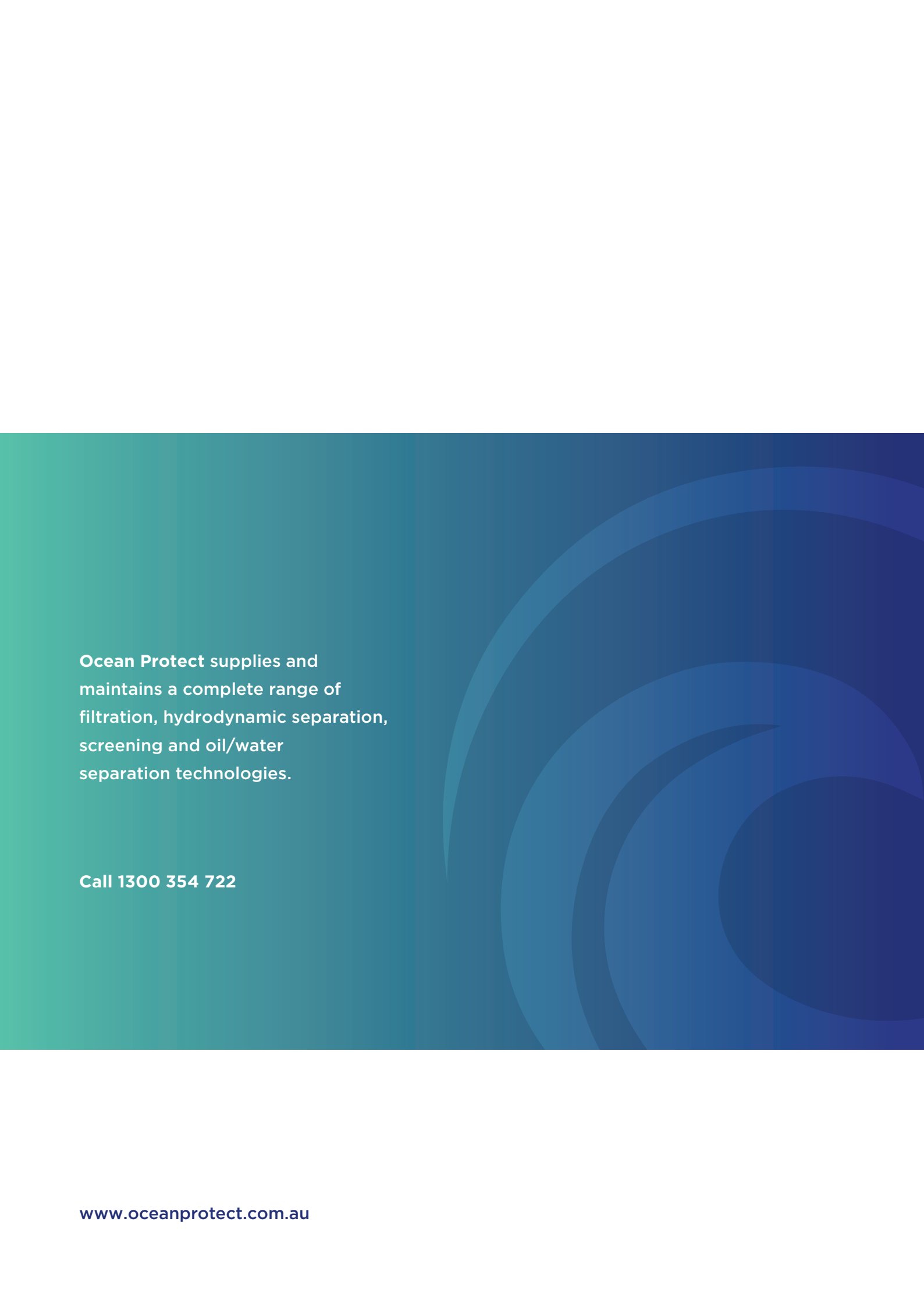
Appendix 1 – Jellyfish® Precast Manhole Standard Models

54-inch (1.37m) Full Length Cartridge

Model	High flow cartridges	Drain-down cartridges	457mm Head Flow rate (L/s)	305mm Head Flow rate (L/s)	229mm Head Flow rate (L/s)
JF-900-1-1	1	1	7.5	5.3	4.1
JF-900-2-1	2	1	12.5	8.6	6.6
JF-1200-1-1	1	1	7.5	5.3	4.1
JF-1200-2-1	2	1	12.5	8.6	6.6
JF-1500-3-1	3	1	17.5	12.0	9.1
JF-1500-4-1	4	1	22.5	15.3	11.7
JF-1500-5-1	5	1	27.5	18.7	14.2
JF-2300-6-1	6	1	32.5	22.0	16.7
JF-2300-7-2	7	2	40	27.3	20.8
JF-2300-8-2	8	2	45	30.6	23.3
JF-2300-9-2	9	2	50	34.0	25.8
JF-2300-10-2	10	2	55	37.3	28.4
JF-3300-11-2	11	2	60	40.7	30.9
JF-3300-12-2	12	2	65	44.0	33.4
JF-3300-13-3	13	3	72.5	49.3	37.5
JF-3300-14-3	14	3	77.5	52.6	40.0
JF-3300-15-3	15	3	82.5	56.0	42.5
JF-3300-16-3	16	3	87.5	59.3	45.1
JF-3300-17-3	17	3	92.5	62.7	47.6
JF-3300-18-3	18	3	97.5	66.0	50.1
JF-3300-19-4	19	4	105	71.3	54.2
JF-3300-20-4	20	4	110	74.6	56.7
JF-3300-21-4	21	4	115	78.0	59.2
JF-3300-22-4	22	4	120	81.3	61.8
JF-3300-23-4	23	4	125	84.7	64.3
JF-3300-24-4	24	4	130	88.0	66.8
JF-3300-25-5	25	5	137.5	93.3	70.9
JF-3300-26-5	26	5	142.5	96.6	73.4
JF-3300-27-5	27	5	147.5	100.0	75.9
JF-3300-28-5	28	5	152.5	103.3	78.5
JF-3300-29-5	29	5	157.5	106.7	81.0

27-inch (0.686m) Half Length Cartridge

Model	High flow cartridges	Drain-down cartridges	457mm Head Flow rate (L/s)	305mm Head Flow rate (L/s)	229mm Head Flow rate (L/s)
JF-900-1-1	1	1	3.8	2.7	2.1
JF-900-2-1	2	1	6.3	4.3	3.3
JF-1200-1-1	1	1	3.8	2.7	2.1
JF-1200-2-1	2	1	6.3	4.3	3.3
JF-1500-3-1	3	1	8.8	6.0	4.6
JF-1500-4-1	4	1	11.3	7.7	5.9
JF-1500-5-1	5	1	13.8	9.4	7.1
JF-2300-6-1	6	1	16.3	11.1	8.4
JF-2300-7-2	7	2	20.1	13.7	10.5
JF-2300-8-2	8	2	22.6	15.4	11.7
JF-2300-9-2	9	2	25.1	17.1	13.0
JF-2300-10-2	10	2	27.6	18.8	14.3
JF-3300-11-2	11	2	30.1	20.4	15.6
JF-3300-12-2	12	2	32.6	22.1	16.8
JF-3300-13-3	13	3	36.4	24.8	18.9
JF-3300-14-3	14	3	38.9	26.5	20.2
JF-3300-15-3	15	3	41.4	28.1	21.4
JF-3300-16-3	16	3	43.9	29.8	22.7
JF-3300-17-3	17	3	46.4	31.5	24.0
JF-3300-18-3	18	3	48.9	33.2	25.2
JF-3300-19-4	19	4	52.7	35.8	27.3
JF-3300-20-4	20	4	55.2	37.5	28.6
JF-3300-21-4	21	4	57.7	39.2	29.8
JF-3300-22-4	22	4	60.2	40.9	31.1
JF-3300-23-4	23	4	62.7	42.6	32.4
JF-3300-24-4	24	4	65.2	44.2	33.6
JF-3300-25-5	25	5	69	46.9	35.7
JF-3300-26-5	26	5	71.5	48.6	37.0
JF-3300-27-5	27	5	74	50.3	38.2
JF-3300-28-5	28	5	76.5	51.9	39.5
JF-3300-29-5	29	5	79	53.6	40.8



Ocean Protect supplies and maintains a complete range of filtration, hydrodynamic separation, screening and oil/water separation technologies.

Call 1300 354 722

www.oceanprotect.com.au

AtlanVault

Modular precast on-site stormwater detention system



atlan.com.au

Atlan
STORMWATER



APPLICATIONS

- Residential
- Commercial
- Industrial
- Retail sites
- Subdivisions
- Urban infrastructure

FEATURES



A modular precast on-site stormwater detention system (OSD) that has the proven strength & durability of concrete, is simple & fast to install, and easily accessible for maintenance.

The AtlanVault can be arranged in a modular configuration to achieve small to very large OSD requirements with flexibility in footprint design.

It is a robust solution for stormwater detention typically installed under carpark in commercial premises, or the common driveways in multi-unit developments. The AtlanVault is selected for its easy access for maintenance, strong traffic rating, simple installation protocol, and ability for large volumes to be installed in a single day and truck trafficable immediately.

- Flexibility in footprint design for optimum layouts
- Flexible heights to suit site levels
- Truck trafficable. Delivered to site cured to 50MPa. The tanks can be installed, backfilled and trafficable immediately, maintaining site accessibility.
- Modules do not rely on stone backfill for stormwater storage or support, so there are smaller excavations and less spoil to dispose of compared to other systems.
- Units are delivered to site to meet clients cranes and are generally installed immediately. This is no on-site storage of modules required so on-site space is optimised.
- AtlanFilter cartridges can be designed to be contained in these systems so water quality outcomes can be achieved without additional separate tanks.





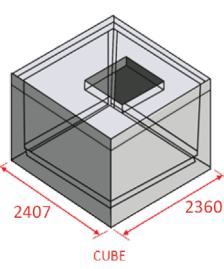
COMPARISON

OSD SYSTEMS	ATLANVAULT/MEGAVALT	CONVENTIONAL CAST INSITU OR BLOCK & SLAB
STRUCTURAL ENGINEERING	All required structural certification provided by Atlan Stormwater and Engineering Partners minimising onsite inspections and increasing construction efficiency.	Structural engineering requires 'Hold Points' and visual inspection to ensure correct construction methods are achieved. Potential delays and risk of trade error is higher.
CONSTRUCTION PROGRAM EFFICIENCIES	Construction timeline savings of up to 90% can be achieved, with a guaranteed reduction of labour required on site.	Multiple trades required to complete the scope providing a slower construction timeline and increased risk of poor weather and delays.
SAFETY	Reduces the amount of labour required to complete the works. Significantly decreased open excavation time. Minimises the requirement of Confined Space Entry during tank construction.	Increased time with an open excavation due to increased sub-contractor involvement. Co-ordination on safety plans and inductions with increased involvement and supervision required. Exposed reinforcement contributing to trip hazards. Confined Space Entry is required.
ENVIRONMENTAL IMPACT	<ul style="list-style-type: none"> Minimal construction waste. Decreased excavation time. Decreases risk of silt release. No concrete truck washouts required. 	<ul style="list-style-type: none"> Increased construction waste from palletised construction materials to complete the scope. Concrete truck washouts required.
QUALITY	Tanks constructed to ISO9001 Quality Standards. Atlan Stormwater engineering partners provide product 'sign-off'.	Hold points and visual sign off by the project Certified Engineers.
ORGANISATIONS REQUIRED	Atlan Stormwater offer a 'Turnkey' Solution from design and manufacture through to construction.	Multiple trades.



SIZES & CAPACITIES

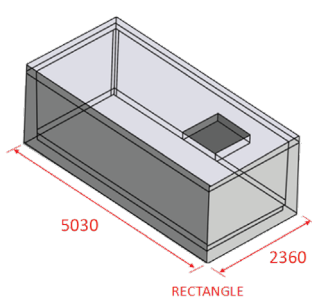
NOTE: Internal heights only provided as tank lid thickness is dependant on traffic rating & soil/slab cover. Visit our website to download plans and drawings.



CUBE

2407mm long x 2360mm wide

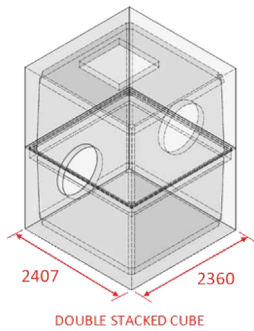
INTERNAL HEIGHT	CAPACITY kL
900	4.085
950	4.371
1000	4.550
1100	5.018
1150	5.252
1200	5.488
1250	5.723
1300	5.959
1350	6.196
1464	6.737



RECTANGLE

5030mm long x 2360mm wide

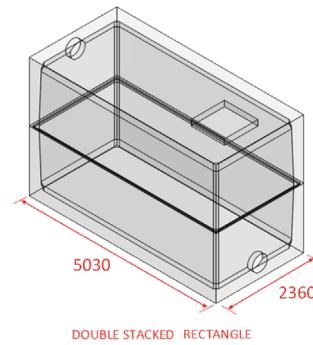
INTERNAL HEIGHT	CAPACITY kL
900	9.064
950	9.577
1000	10.090
1100	11.119
1150	11.635
1200	12.152
1250	12.669
1300	13.187
1350	13.706
1464	14.892



DOUBLE STACKED CUBE

2407mm long x 2360mm wide

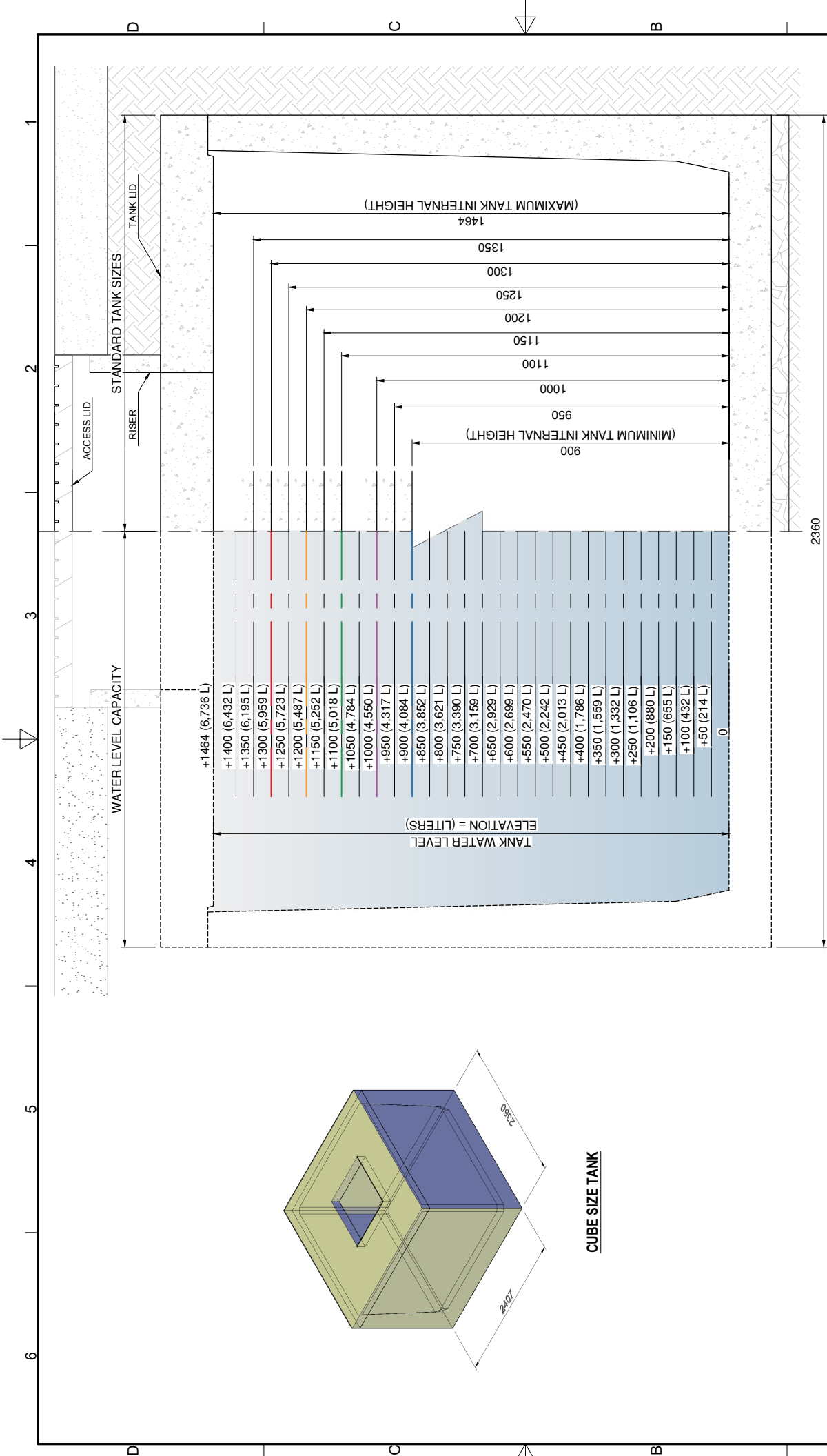
BASE SECTION INTERNAL HEIGHT	TOP SECTION INTERNAL HEIGHT	INTERNAL HEIGH	CAPACITY kL
884	916	1800	8.170
934	916	1850	8.456
984	916	1900	8.635
984	966	1950	8.921
984	1016	2000	9.100
1134	916	2050	9.337
1184	916	2100	9.573
1184	966	2150	9.859
1184	1016	2200	10.038
1334	916	2250	10.281
1334	966	2300	10.567
1439	916	2355	10.703
1439	966	2405	10.989
1438	1016	2455	11.168
1334	1166	2500	11.448
1439	1116	2555	11.636
1439	1166	2605	11.870
1439	1216	2655	12.106
1439	1266	2705	12.341
1439	1316	2755	12.577
1439	1366	2805	12.814
1439	1471	2910	13.388



DOUBLE STACKED RECTANGLE

5030mm long x 2360mm wide

BASE SECTION INTERNAL HEIGHT	TOP SECTION INTERNAL HEIGHT	INTERNAL HEIGH	CAPACITY kL
884	916	1800	18.128
934	916	1850	18.640
984	916	1900	19.154
984	966	1950	19.666
984	1016	2000	20.180
1134	916	2050	20.699
1184	916	2100	21.215
1184	966	2150	21.728
1184	1016	2200	22.241
1334	916	2250	22.770
1334	966	2300	23.283
1439	916	2355	23.858
1439	966	2405	24.372
1438	1016	2455	24.885
1334	1166	2500	25.341
1439	1116	2555	25.915
1439	1166	2605	26.431
1439	1216	2655	26.915
1439	1266	2705	27.466
1439	1316	2755	27.984
1439	1366	2805	28.493
1439	1471	2910	29.596



REVISION HISTORY			
REV	DESCRIPTION	DRAWN	DATE
1	INITIAL ISSUE	C.C.	19/03/2024

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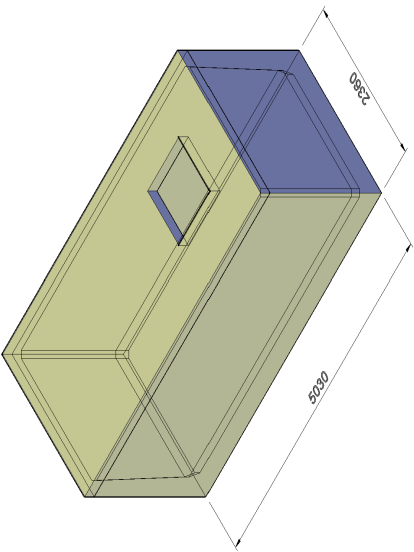
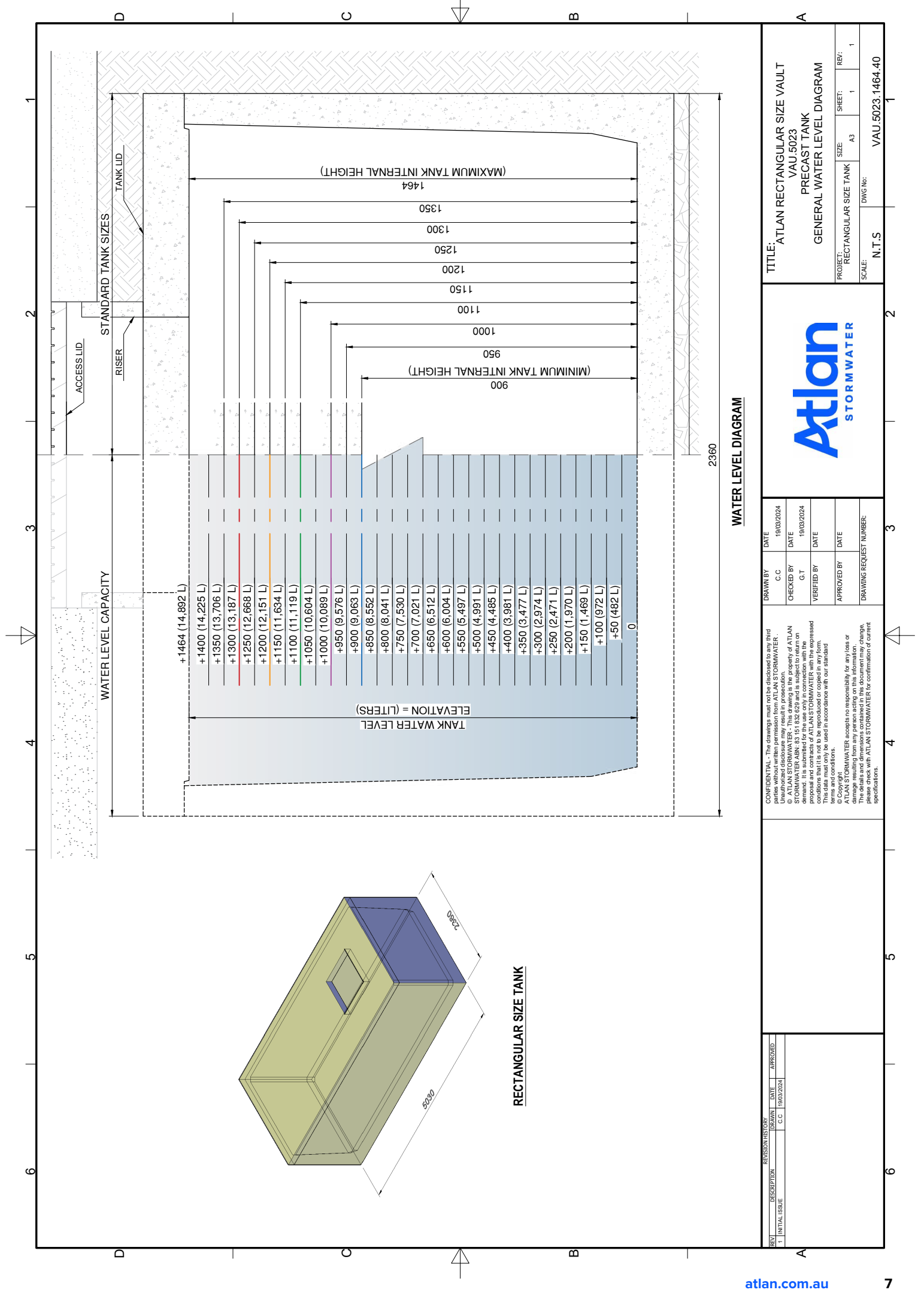
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G.T.	19/03/2024
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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	



TITLE: ATLAN CUBE SIZE VAULT VAU.2423 PRECAST TANK GENERAL WATER LEVEL DIAGRAM			
PROJECT:	CUBE SIZE TANK	SIZE:	A3
SHEET:	1	REV:	1
SCALE:	N.T.S	DWG No:	VAU.2423.1464.40



RECTANGULAR SIZE TANK

REVISION HISTORY		DATE		APPROVED	
REV	DESCRIPTION	DRAWN	DATE	DATE	DATE
1	INITIAL ISSUE	C.C	19/03/2024		

PROJECT: RECTANGULAR SIZE TANK		SIZE: A3		SHEET: 1		REV: 1	
SCALE: N.T.S		DWG No:		VAU.5023.1464.40			

TITLE: ATLAN RECTANGULAR SIZE VAULT		VAU 5023		PRECAST TANK		GENERAL WATER LEVEL DIAGRAM	
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WATER LEVEL DIAGRAM

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DRAWING REQUEST NUMBER:			

AtlanVault

Modular precast on-site stormwater detention system



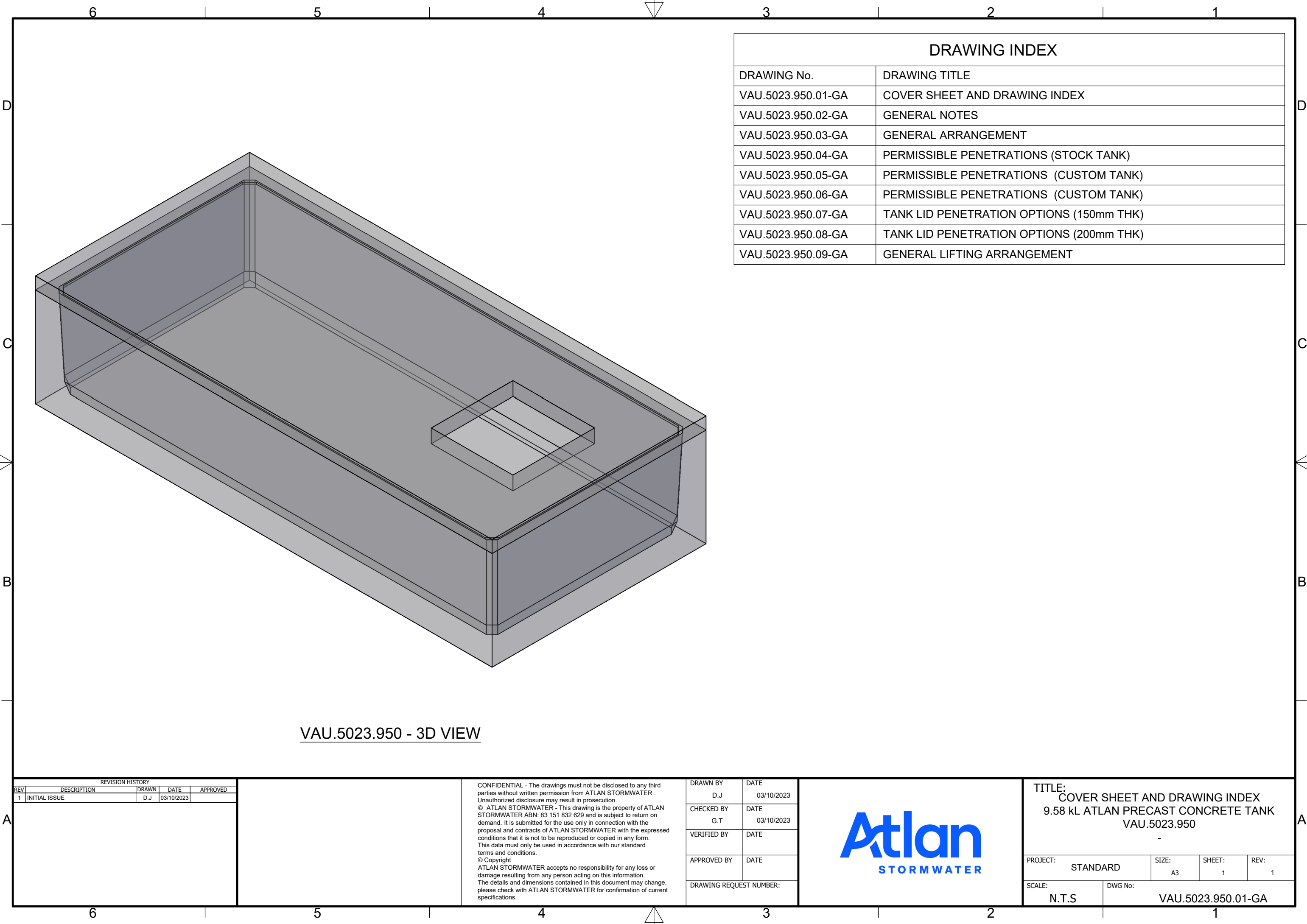
Joy in water

'We believe clean waterways are a right not a privilege
and we work to ensure a Joy in Water experience for
you, with your children and grandchildren.'

Andy Hornbuckle

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STORMWATER

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ACT | NSW | NT | QLD | SA | TAS | VIC | WA | NZ
To contact your local branch visit www.atlan.com.au



VAU.5023.950 - 3D VIEW

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
VAU.5023.950.01-GA	COVER SHEET AND DRAWING INDEX
VAU.5023.950.02-GA	GENERAL NOTES
VAU.5023.950.03-GA	GENERAL ARRANGEMENT
VAU.5023.950.04-GA	PERMISSIBLE PENETRATIONS (STOCK TANK)
VAU.5023.950.05-GA	PERMISSIBLE PENETRATIONS (CUSTOM TANK)
VAU.5023.950.06-GA	PERMISSIBLE PENETRATIONS (CUSTOM TANK)
VAU.5023.950.07-GA	TANK LID PENETRATION OPTIONS (150mm THK)
VAU.5023.950.08-GA	TANK LID PENETRATION OPTIONS (200mm THK)
VAU.5023.950.09-GA	GENERAL LIFTING ARRANGEMENT

REVISION HISTORY				
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1	INITIAL ISSUE	D.J	03/10/2023	

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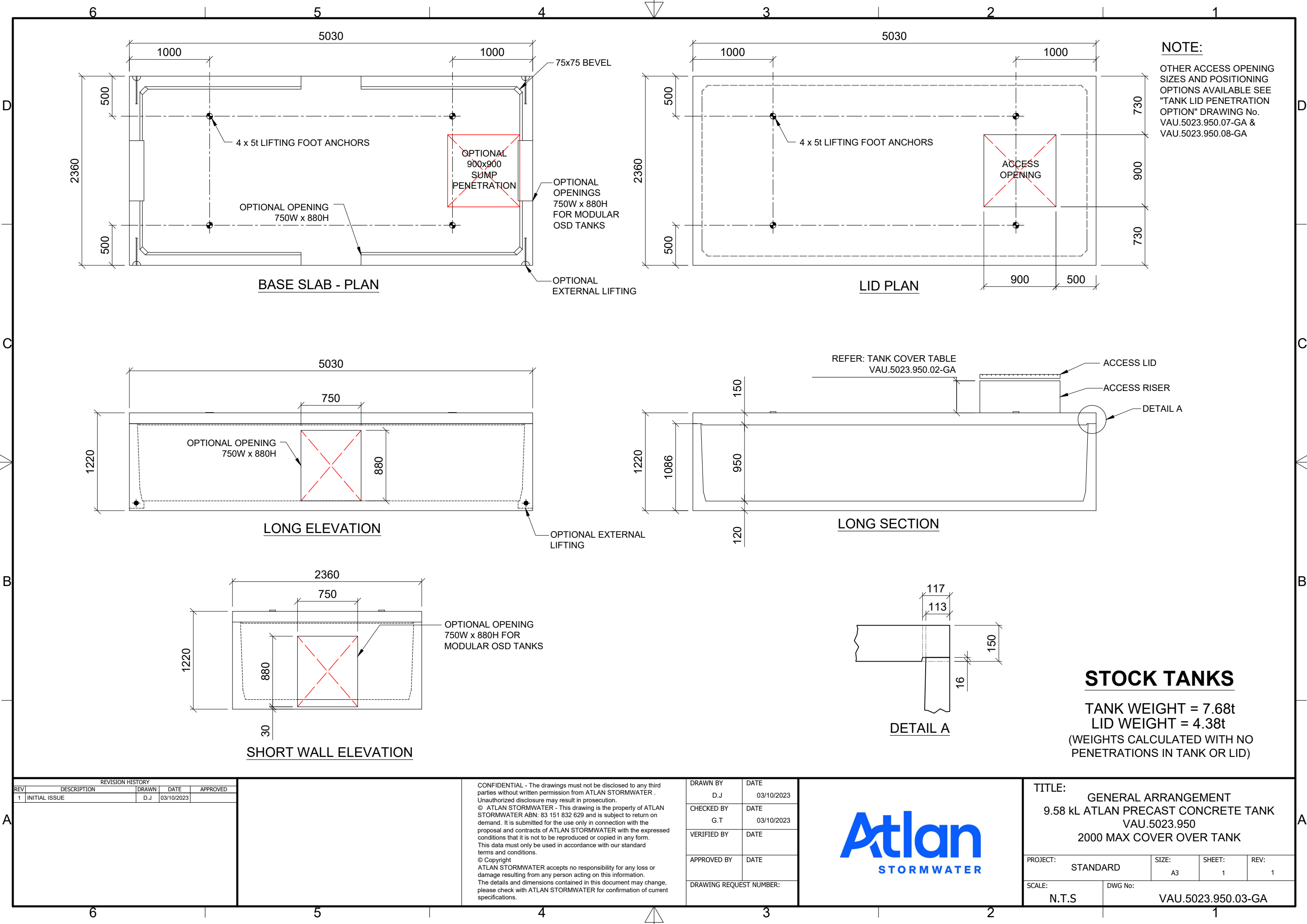
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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	



TITLE: COVER SHEET AND DRAWING INDEX 9.58 kL ATLAN PRECAST CONCRETE TANK VAU.5023.950 -			
PROJECT:	STANDARD	SIZE:	SHEET:
		A3	1
REV:	1	DWG No:	
		VAU.5023.950.01-GA	
SCALE:	N.T.S		



NOTE:
OTHER ACCESS OPENING
SIZES AND POSITIONING
OPTIONS AVAILABLE SEE
"TANK LID PENETRATION
OPTION" DRAWING No.
VAU.5023.950.07-GA &
VAU.5023.950.08-GA

STOCK TANKS

TANK WEIGHT = 7.68t
LID WEIGHT = 4.38t
(WEIGHTS CALCULATED WITH NO
PENETRATIONS IN TANK OR LID)

REVISION HISTORY				
REV	DESCRIPTION	DRAWN	DATE	APPROVED
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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	



TITLE: GENERAL ARRANGEMENT 9.58 kL ATLAN PRECAST CONCRETE TANK VAU.5023.950 2000 MAX COVER OVER TANK			
PROJECT:	STANDARD	SIZE:	SHEET:
		A3	1
SCALE:	N.T.S	DWG No:	1
		VAU.5023.950.03-GA	

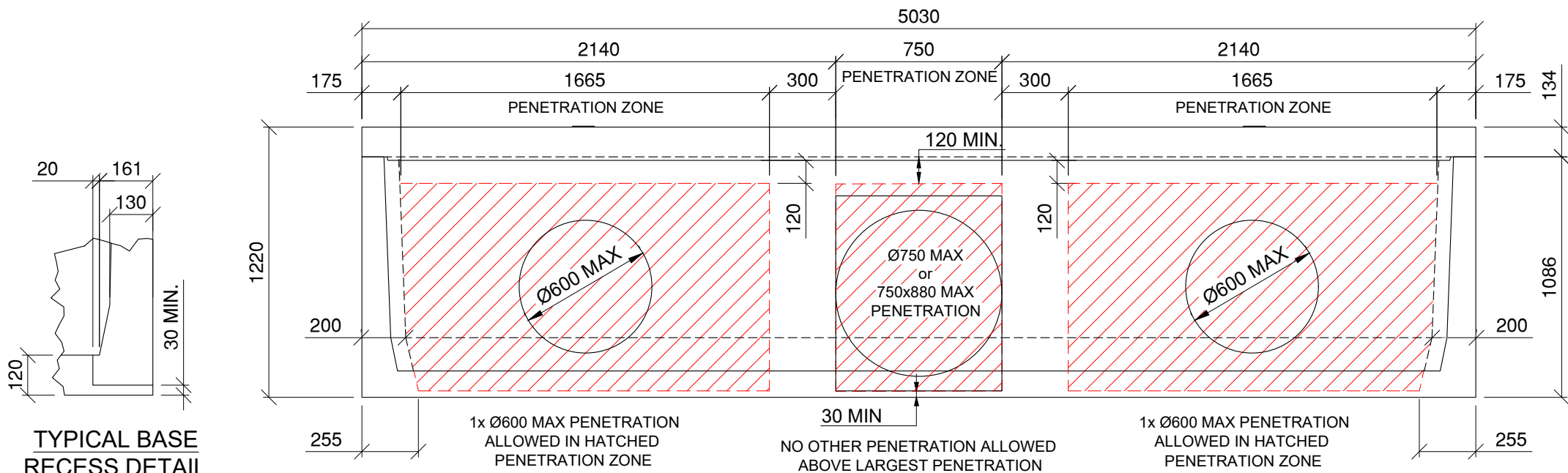
STOCK TANKS

STOCK TANKS

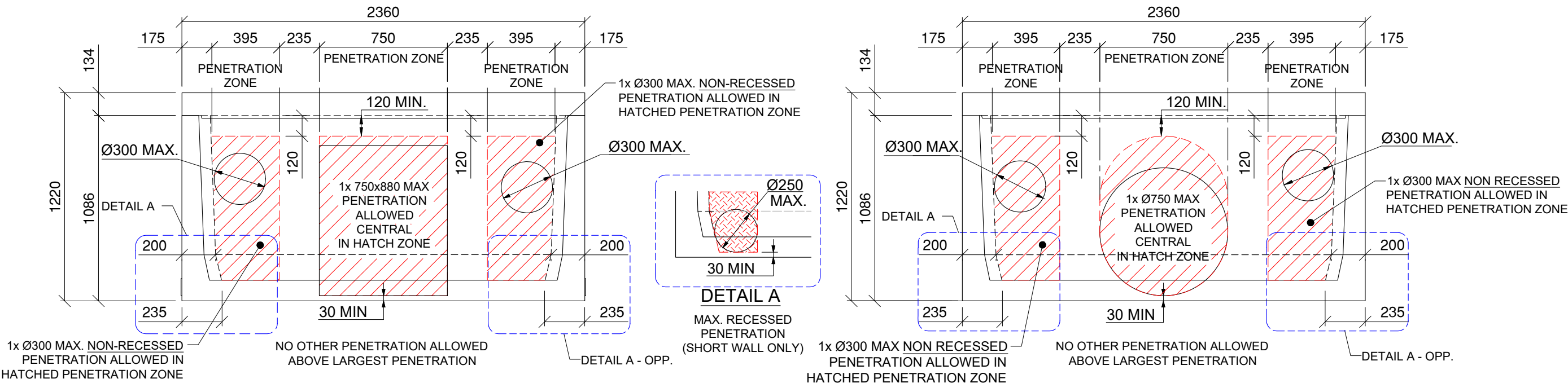
THESE GUIDELINES ARE FOR A STOCK TANK WITH STANDARD REINFORCEMENT.

IF REQUIRED PENETRATIONS ARE OUTSIDE OF THE GUIDELINES SHOWN, CONTACT ATLAN WHO WILL SEEK FURTHER ENGINEERING ADVICE.

CUSTOM TANKS CAN PROVIDE PENETRATIONS OUTSIDE THESE GUIDELINES REFER.
"PERMISSIBLE PENETRATIONS - CUSTOM TANKS"
ON DRAWINGS VAU.5023.950.05-GA & VAU.5023.950.06-GA FOR A GUIDE PRIOR TO TANK PRODUCTION.



LONG WALL - SINGLE LARGEST PERMISSIBLE PENETRATION



SHORT WALL - 750x880 MAX. PENETRATION

SHORT WALL - Ø 750 MAX PENETRATION

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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	

Atlan
STORMWATER

TITLE:
9.58 kL ATLAN PRECAST CONCRETE TANK
VAU.5023.950
STOCK TANKS

PROJECT:	STANDARD	SIZE:	A3	SHEET:	1	REV:	1
SCALE:	N.T.S	DWG No:	VAU.5023.950.04-GA				

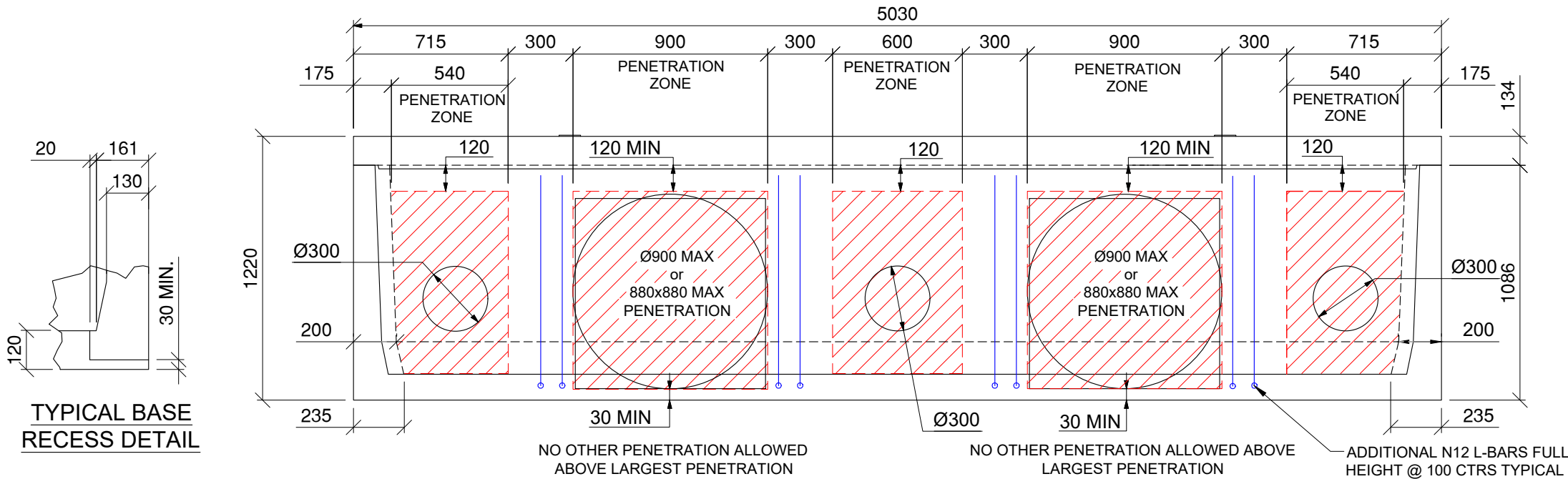
CUSTOM TANKS

IMPORTANT NOTE:

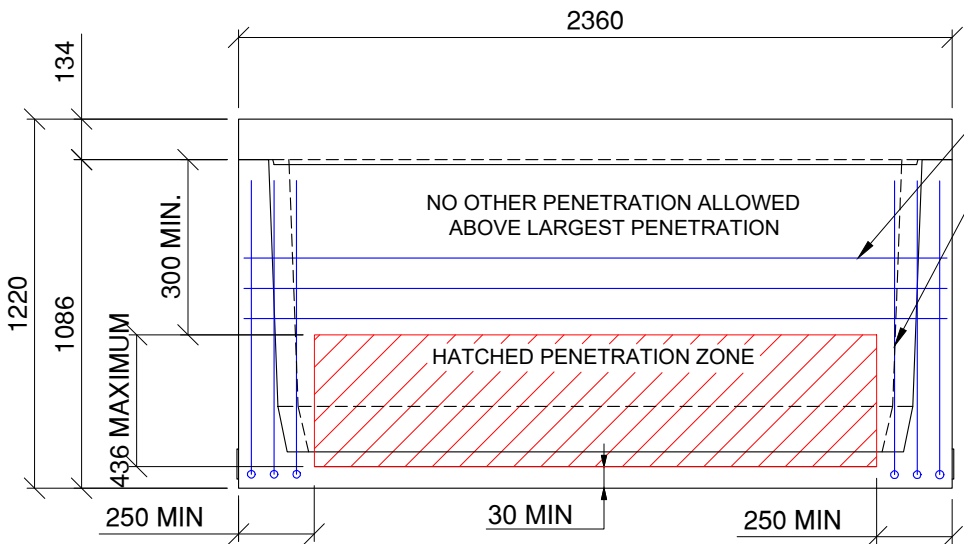
THESE PENETRATIONS CANNOT BE PERFORMED TO A STANDARD TANK.

THEY ARE REQUIRED TO BE ARRANGED WITH ATLAN, PRIOR TO POURING THE TANK SO ADDITIONAL REINFORCEMENT CAN BE INCLUDED.

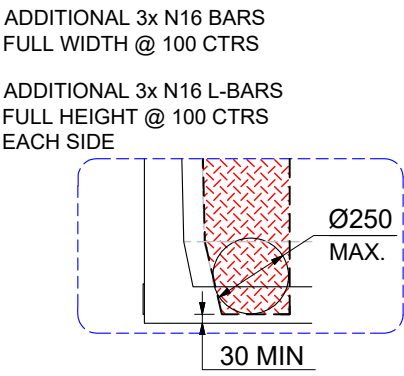
FOR STANDARD PERMISSIBLE PENETRATION REFER DRAWING VAU.5023.950.04-GA FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT ATLAN FOR DESIGN / ENGINEERING ASSISTANCE.



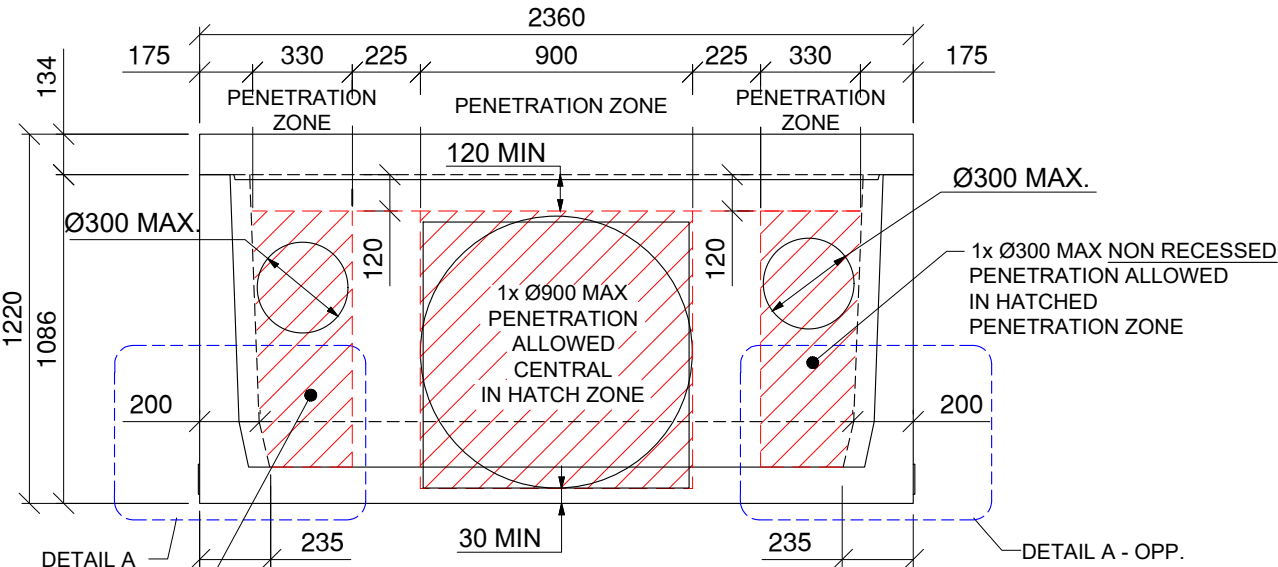
LONG WALL - 2x LARGEST PERMISSIBLE PENETRATIONS



SHORT WALL - MAX. CUSTOM PENETRATION



DETAIL A
MAX. RECESSED PENETRATION (SHORT WALL ONLY)



SHORT WALL - PENETRATION ZONE - Ø 900 MAX PENETRATION

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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	

Atlan
STORMWATER

TITLE:
PERMISSIBLE PENETRATIONS
9.58 kL ATLAN PRECAST CONCRETE TANK
VAU.5023.950
CUSTOM TANKS

PROJECT:	STANDARD	SIZE:	A3	SHEET:	1	REV:	1
SCALE:	N.T.S	DWG No:	VAU.5023.950.05-GA				

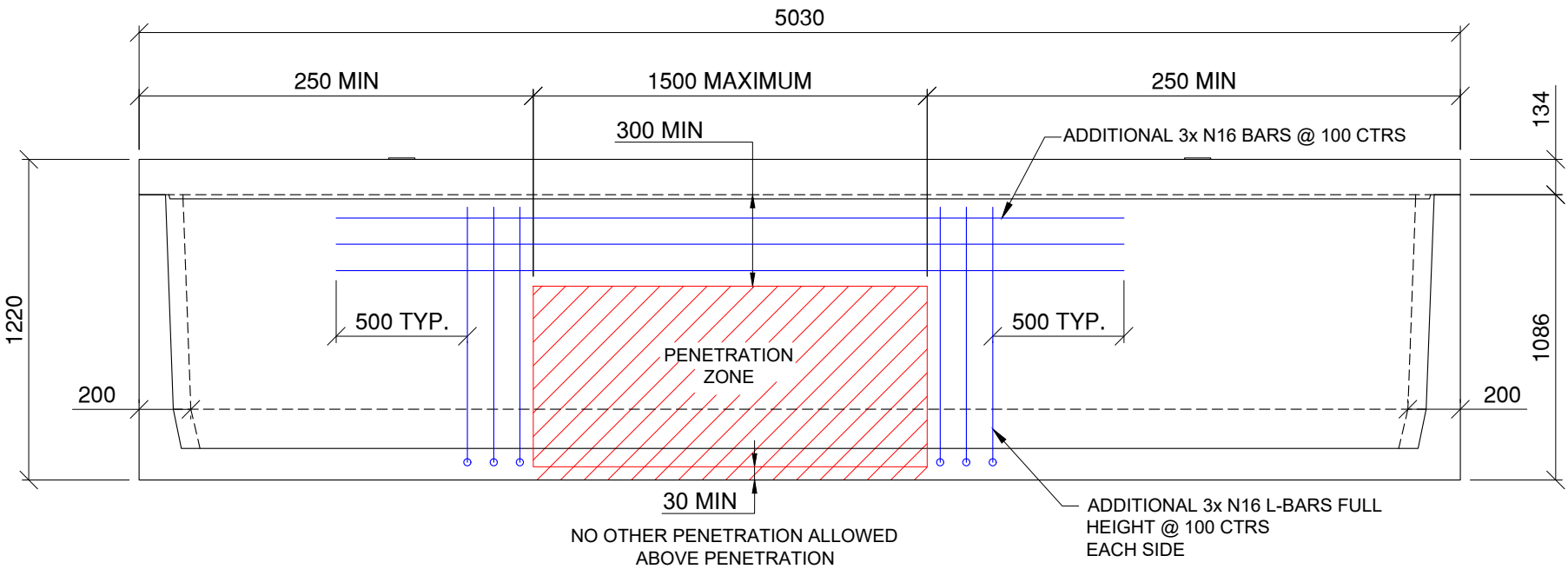
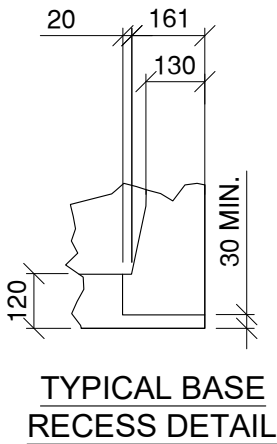
CUSTOM TANKS

IMPORTANT NOTE:

THESE PENETRATIONS CANNOT BE PERFORMED TO A STANDARD TANK.

THEY ARE REQUIRED TO BE ARRANGED WITH ATLAN, PRIOR TO POURING THE TANK SO ADDITIONAL REINFORCEMENT CAN BE INCLUDED.

FOR STANDARD PERMISSIBLE PENETRATION REFER DRAWING VAU.5023.950.04-GA
FOR ADDITIONAL PENETRATION COMBINATIONS CONTACT ATLAN FOR DESIGN / ENGINEERING ASSISTANCE.



LONG WALL - MAXIMUM SINGLE PENETRATION

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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	



TITLE:

PERMISSIBLE PENETRATIONS

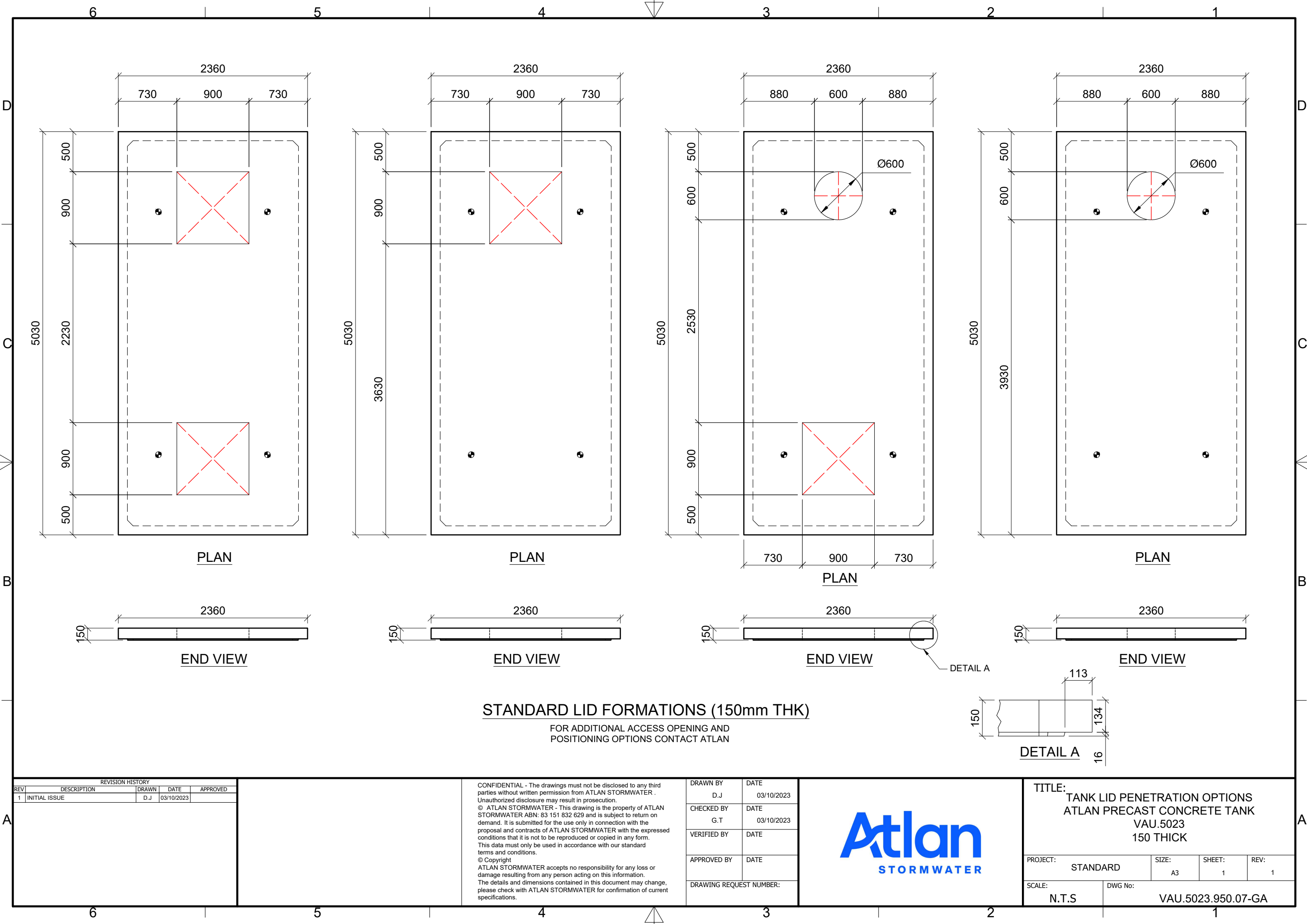
9.58 kL ATLAN PRECAST CONCRETE TANK

VAU.5023.950

CUSTOM TANKS

PROJECT:	STANDARD	SIZE:	A3	SHEET:	1	REV:	1
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SCALE:	N.T.S	DWG No:	VAU.5023.950.06-GA
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STANDARD LID FORMATIONS (150mm THK)

FOR ADDITIONAL ACCESS OPENING AND POSITIONING OPTIONS CONTACT ATLAN

REVISION HISTORY				
REV	DESCRIPTION	DRAWN	DATE	APPROVED
1	INITIAL ISSUE	D.J	03/10/2023	

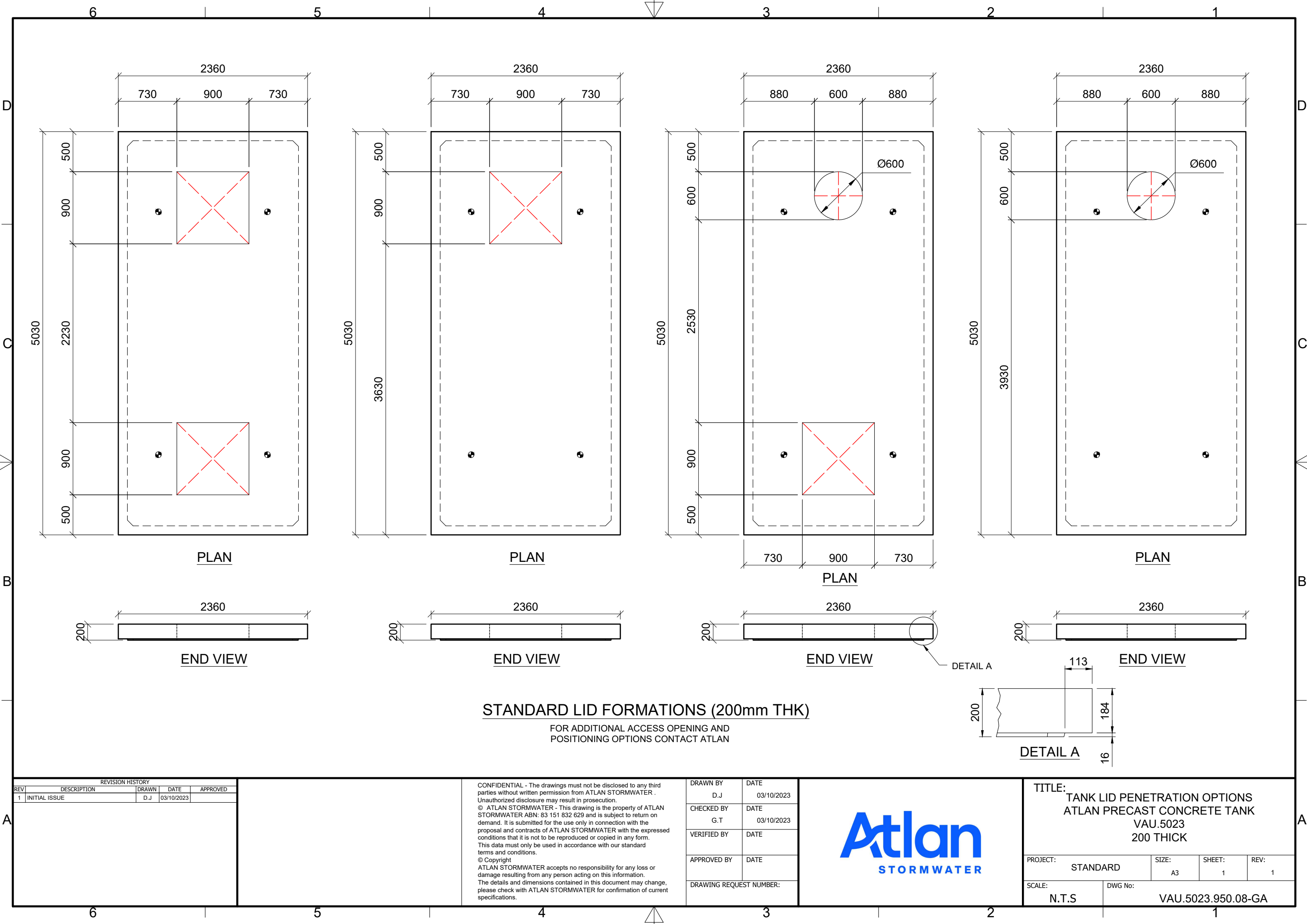
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APPROVED BY	DATE
DRAWING REQUEST NUMBER:	



TITLE:
TANK LID PENETRATION OPTIONS
ATLAN PRECAST CONCRETE TANK
VAU.5023
150 THICK

PROJECT:	STANDARD	SIZE:	A3	SHEET:	1	REV:	1
SCALE:	N.T.S	DWG No:	VAU.5023.950.07-GA				



STANDARD LID FORMATIONS (200mm THK)

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1	INITIAL ISSUE	D.J	03/10/2023	

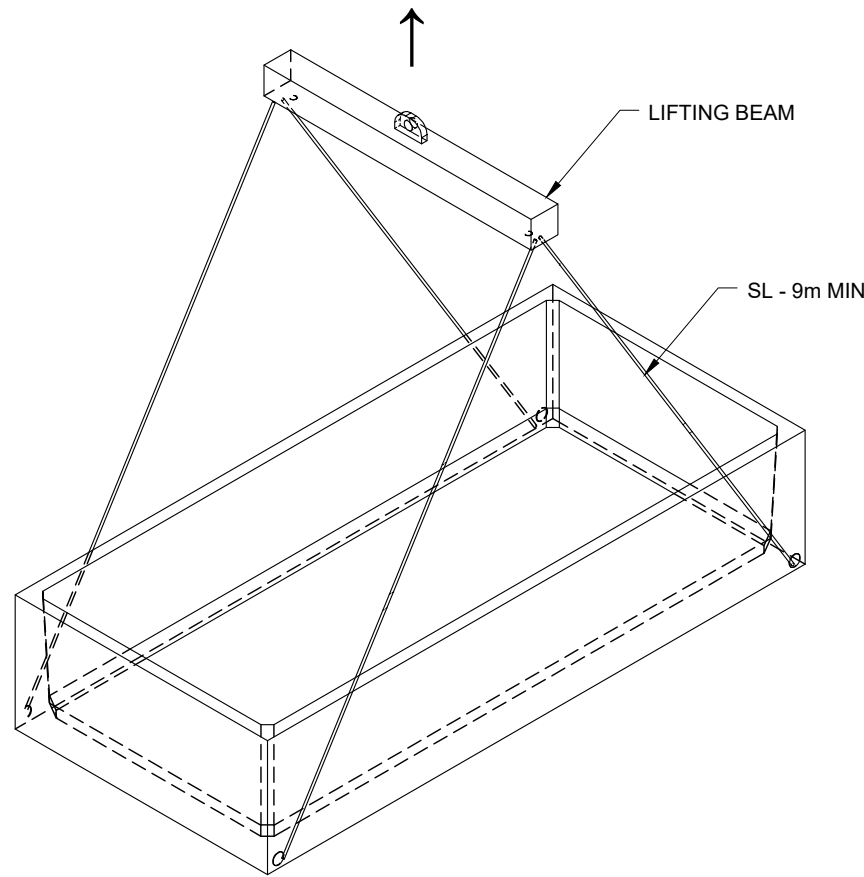
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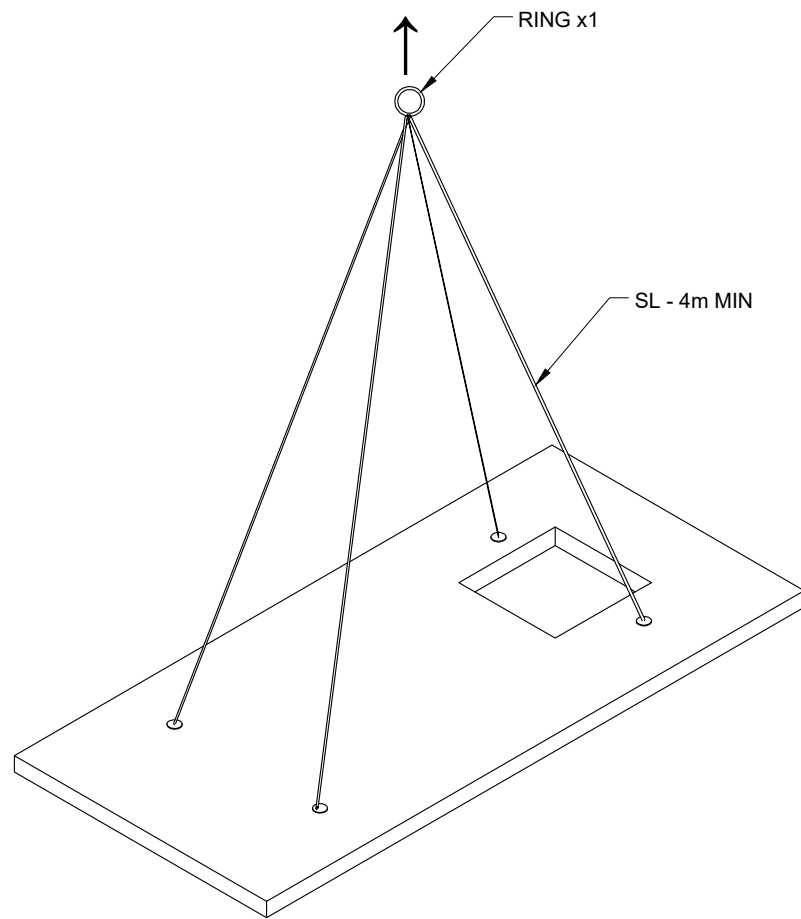


TITLE:
TANK LID PENETRATION OPTIONS
ATLAN PRECAST CONCRETE TANK
VAU.5023
200 THICK

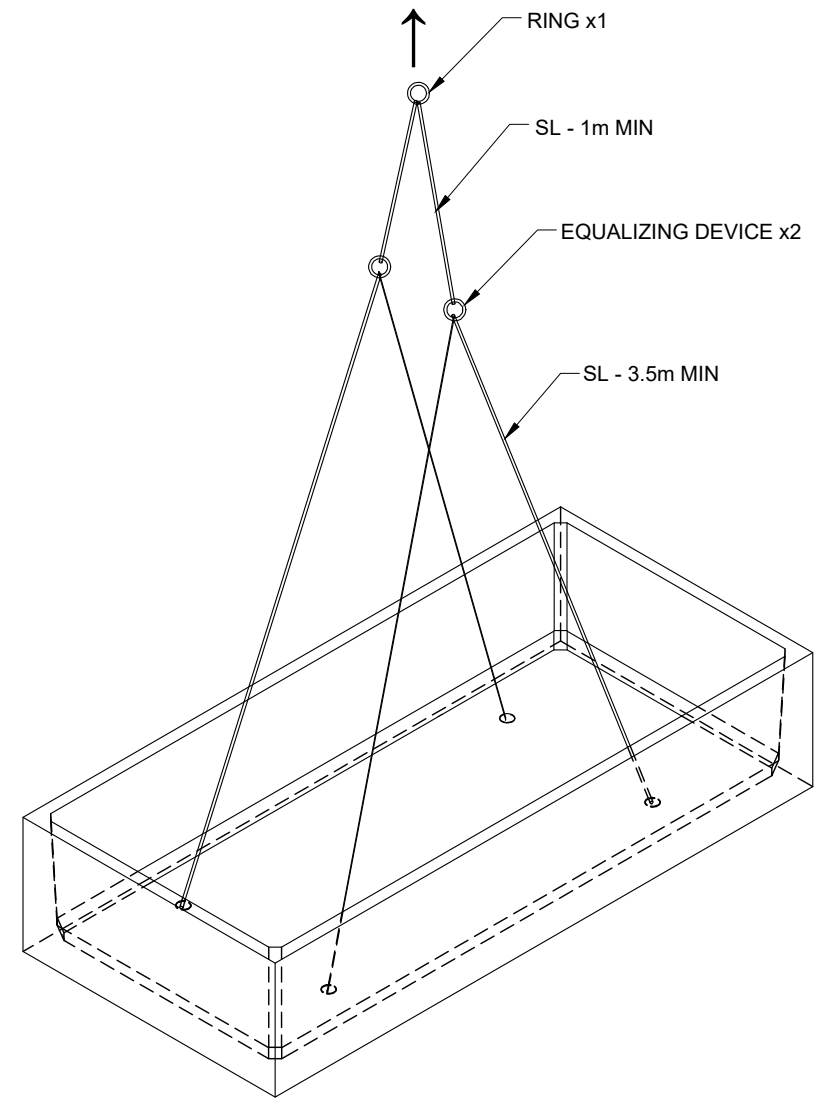
PROJECT:	STANDARD	SIZE:	A3	SHEET:	1	REV:	1
SCALE:	N.T.S	DWG No:	VAU.5023.950.08-GA				



EXTERNAL LIFTING OPTION
LIFTING BEAM w/ SL=9m MIN



TYPICAL LID LIFTING
FLAT LIFT - 4 POINT LOAD
SL = 4m MIN. EACH



INTERNAL LIFTING OPTION
SL = 3.5m MIN. EACH

LIFTING NOTES:

1. TOTAL APPROVED 15.0 t (WLL) PER TANK LIMIT AS SPECIFIED ON DRAWING. CONSULT AN RPEQ ENGINEER FOR LIFTING DESIGN OF SPECIFICALLY DESIGNED TANKS WITH ADDITIONAL FIXTURES INSTALLED AND TOTAL WEIGHT EXCEEDING APPROVED 15.0 t
2. THE ERECTOR SHALL COORDINATE WITH THE SITE PROJECT ENGINEER FOR SITE ACCESS, GROUND CONDITIONS AND PLANNED LIFTING EQUIPMENT PRIOR TO TANK DELIVERY ON SITE. RIGGING ARRANGEMENT SHALL ENSURE THE LOAD IS EVENLY DISTURBED BETWEEN ALL LIFTING ANCHORS. ONLY USE LIFTING PINS PROVIDED WHEN LIFTING, DAMAGED LIFTING PINS SHALL NOT BE USED UNLESS CAPACITY IS VERIFIED AND APPROVED BY A RPEQ ENGINEER.
3. MOBILE CRANES CAN ONLY BE UTILIZED WHEN TRACKING OVER FIRM, FLAT, LEVEL GROUND AT SPEEDS ≤ 10 KM/HR.

REVISION HISTORY				
REV	DESCRIPTION	DRAWN	DATE	APPROVED
1	INITIAL ISSUE	D.J	03/10/2023	

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VERIFIED BY	DATE
APPROVED BY	DATE
DRAWING REQUEST NUMBER:	

Atlan
STORMWATER

TITLE: GENERAL LIFTING ARRANGEMENT 9.58 kL ATLAN PRECAST CONCRETE TANK VAU.5023.950 -			
PROJECT:	STANDARD	SIZE:	A3
		SHEET:	1
		REV:	1
SCALE:	N.T.S	DWG No:	VAU.5023.950.09-GA

Council Correspondence

Appendix B

pitt&sherry

Chimuka Mweemba

From: Leigh Wighton <Leigh.Wighton@brighton.tas.gov.au>
Sent: Wednesday, 4 December 2024 11:36 AM
To: Chimuka Mweemba
Cc: Admin Emails; Kimberley Tongue; development.engineering
Subject: RE: Stormwater requirements for Brighton Council

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Chimuka

Council Policy 6.1 is still in place, however we also use *Tasmanian Stormwater Policy Guidance and Standards for Development*.

[Tasmanian-Stormwater-Policy-Guidance-and-Standards-1-December-2021-15MB.pdf](#)

Council generally does not take contributions for stormwater treatment in commercial and industrial developments.

For this development the expectations would be:

A 2% AEP event be accommodated within the piped system with detention provided as necessary.

Council's adopted service levels for the piped (minor system) are 2% AEP for industrial land and 5% AEP for residential and commercial areas.

The current climate change factor adopted by Council is 16.6%.

Based on our modelling it appears that the capacity of the existing piped network downstream is currently exceeded without considering this parcel of land, so detention will likely be required.

We are just looking at what that might be now.

Kimberley Tongue from our office will get back to you with confirmation on whether detention needs to limit flows to predevelopment for a 2% AEP event or whether we can accommodate more than that.

Stormwater quality from the site must meet the following:

- *Standard Stormwater Treatment Requirements* specified in Table 3 Water Quality Treatment Targets in *DEP AND LGAT TASMANIAN STORMWATER POLICY GUIDANCE AND STANDARDS FOR DEVELOPMENT 2021 V1*
- runoff from the development must be 'visually free' of hydrocarbons prior to entering the public stormwater system.

Regards,

LEIGH WIGHTON

SENIOR OFFICER – DEVELOPMENT ENGINEERING



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1 Tivoli Road, Old Beach TAS 7017

Tel: (03) 6268 7017 | Fax: (03) 6268 7013 | Mob: **0418 569 044**

www.brighton.tas.gov.au

We acknowledge the traditional owners who once walked this country, the Mimirina people, the original custodians of the skies, land and water of kutalayna (Jordan River). We forward our respect to the palawa/pakana (Tasmanian Aboriginal) community as the traditional and original owners of lutruwita (Tasmania).

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From: Chimuka Mweemba <CMweemba@pittsh.com.au>
Sent: Tuesday, 3 December 2024 10:23 AM
To: Admin Emails <Admin.Emails@brighton.tas.gov.au>
Subject: RE: Stormwater requirements for Brighton Council

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Hi,

I am seeking confirmation from an engineer or planner regarding the Stormwater requirements for Brighton Council and if the attached Stormwater quality control document is still relevant. I am currently working on a development application for a data centre at 73 Greenbank's Road, Bridgewater please attached layout.

Additionally, I am writing to inquire about the On-Site Detention (OSD) requirements for a development within your Council.

Specifically, I seek clarification on the following:

1. What is allowed Permissible Site Discharge (PSD) for Brighton Council? i.e. 10%AEP or specific flow rate
2. Does the OSD have to be designed to handle 1% Annual Exceedance Probability (AEP) storm event or just the relevant AEP event?
3. Additional Peak Runoff Requirements: Are there any further regulations or guidelines regarding peak runoff limitations into the Council's network, beyond the standard OSD requirements?

pitt&sherry

Chimuka Mweemba

Civil Engineer

Mobile + **61 433 102 936** | cmweemba@pittsh.com.au | [Connect on LinkedIn](#)

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Chimuka Mweemba

From: Leigh Wighton <Leigh.Wighton@brighton.tas.gov.au>
Sent: Wednesday, 12 February 2025 9:33 AM
To: Chimuka Mweemba
Cc: Joshua Coates; Nicholas Ashlin; Kimberley Tongue
Subject: RE: DA 2024/244 - Planning Permit- 73 Greenbanks Road, Bridgewater

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Chimuka

As discussed.

Councils position is that all SW from the site should be treated prior to entering the public SW system, including the existing private road within the property.

We are however happy to exclude the existing road from the detention calculations as the downstream system should have been designed to accommodate that runoff.

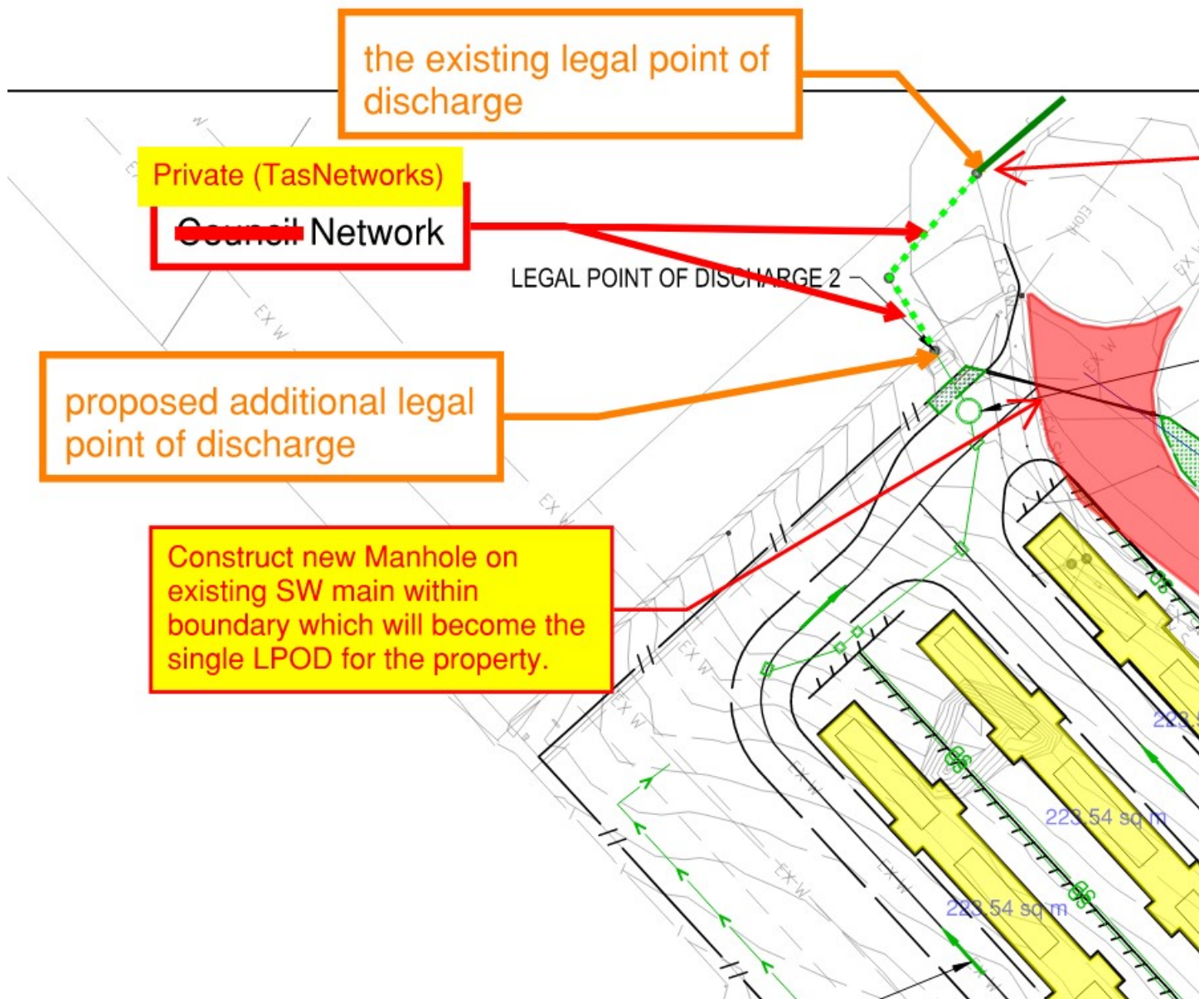
The bunded areas will either need to be roofed with roof runoff going to SW or the bunded areas will need to drain to sewer as trade waste.

Council does not consider a manually operated pump out system for the bunded areas as being acceptable.

The pit you propose to connect to for LPOD2 is not a Council asset and is a private pit that is part of Tas Networks system.

Essentially Council will adopt the main from the existing LPOD (where our main currently finishes) into the property as a public main, subject to it being in a satisfactory state of repair. A new manhole should be provided just inside the boundary as the connection point. All other SW within the property is considered private infrastructure.

See my markup below.



Please don't hesitate to contact me should you require any further clarification or additional information.

Regards,

LEIGH WIGHTON
SENIOR OFFICER – DEVELOPMENT ENGINEERING



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From: Chimuka Mweemba <CMweemba@pittsh.com.au>
Sent: Monday, 10 February 2025 12:56 PM
To: Leigh Wighton <Leigh.Wighton@brighton.tas.gov.au>
Cc: Joshua Coates <jcoates@pittsh.com.au>; Nicholas Ashlin <nashlin@pittsh.com.au>
Subject: RE: DA 2024/244 - Planning Permit- 73 Greenbanks Road, Bridgewater

Caution: This is an external email and may be **malicious**. Please take care when clicking links or opening attachments.

Hi Leigh,

Thanks for taking my call on Friday. Before officially resubmitting the DA application, I'd like to confirm the following RFI comments:

- The report assumes a 100% impervious area for the site, but the MUSIC model includes two catchments totalling 1.55ha, while the total site area is just over 2ha. **This difference is because the 11 data centres/Potables will be self-drained and treated separately from the proposed drainage network. Additionally, the existing road has not been considered in the WSUD. Please confirm whether excluding the road is acceptable, given that it is pre-existing. DRAINS model has also**

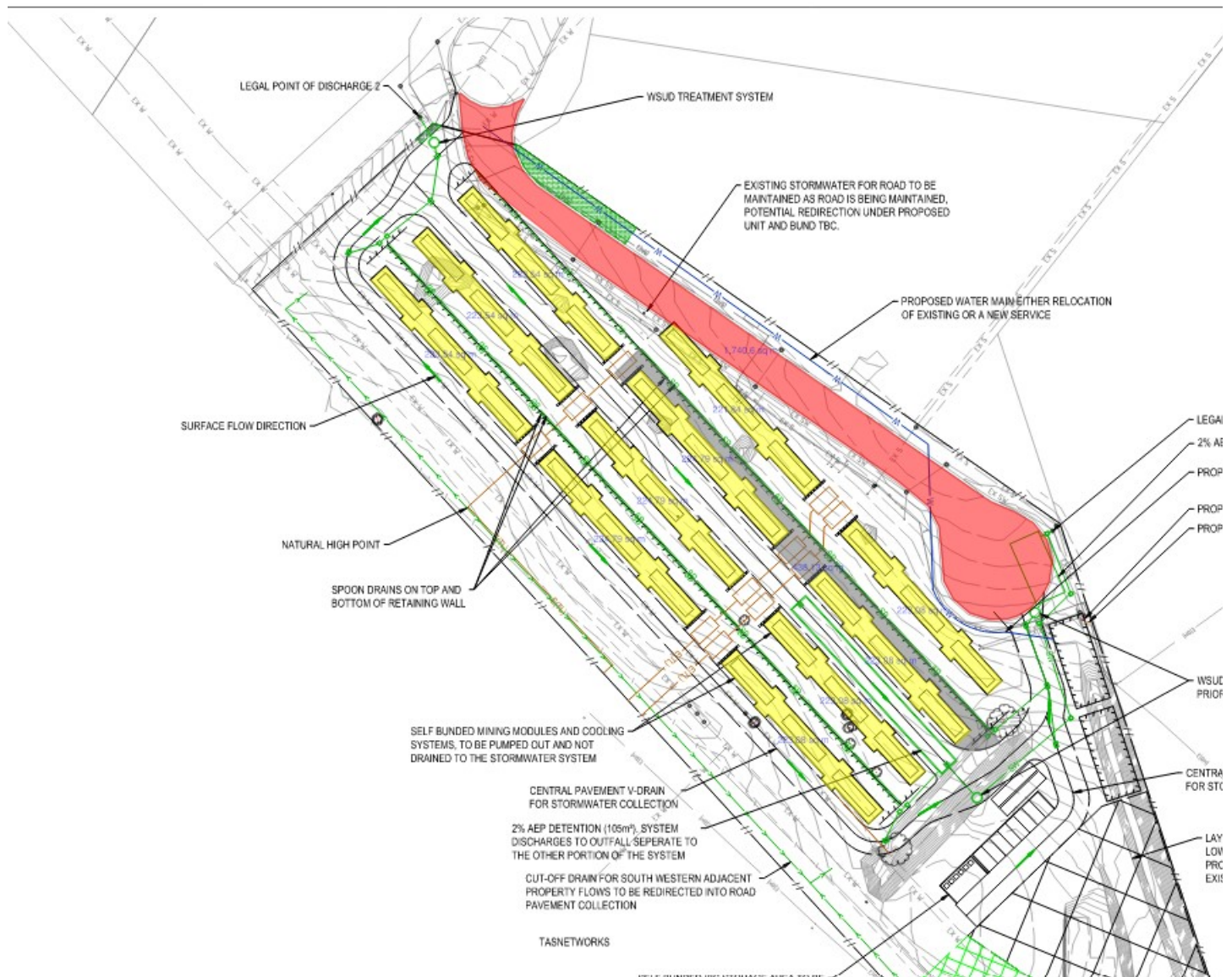
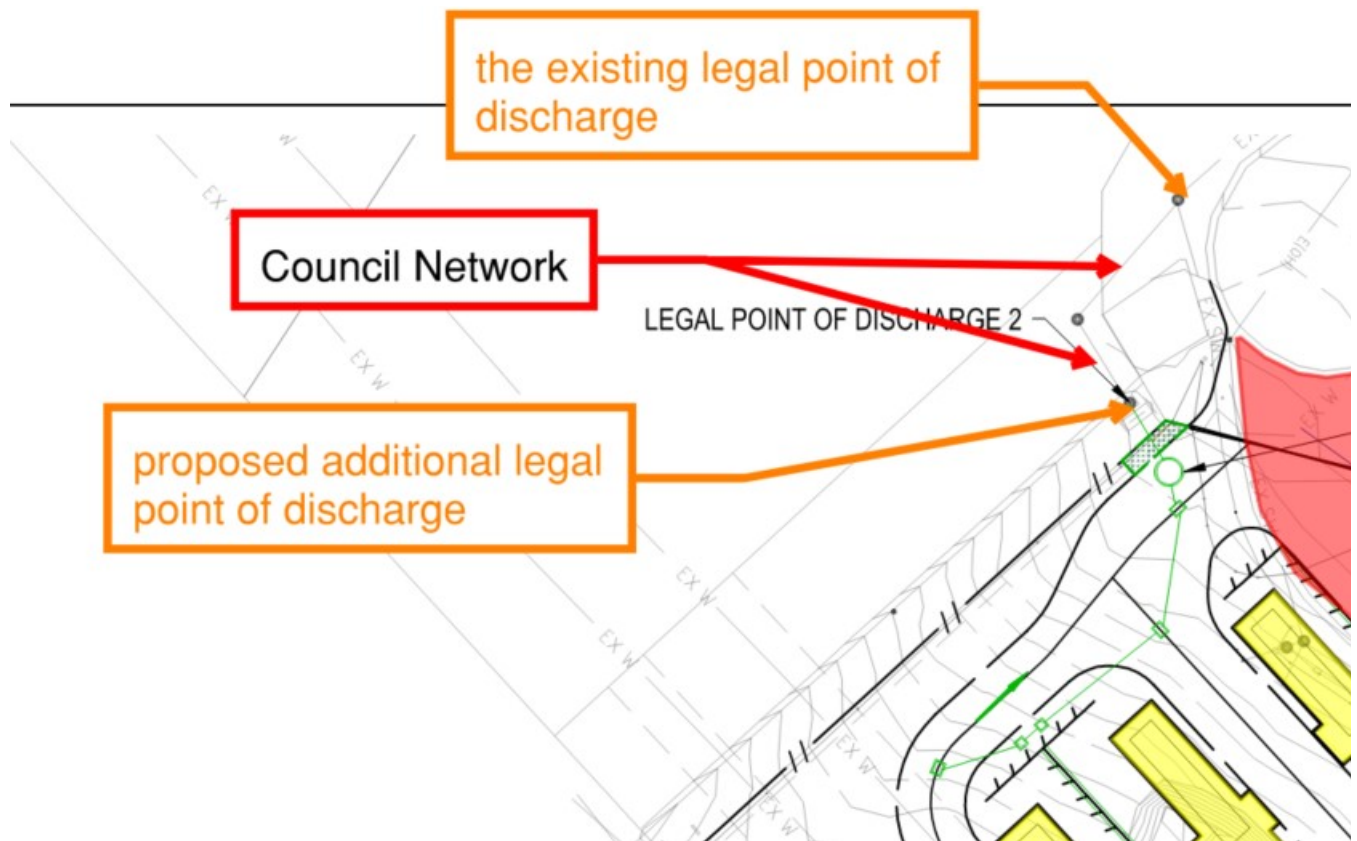


Figure 1 - Yellow highlights the data centres and red highlights the road

- The site only has 1 existing legal point of discharge. The existing stormwater infrastructure (and all other infrastructure within the property is private and has never been adopted by Council or other authorities). **Is it possible to have 2 legal points of discharge for the property as per image below.**



pitt&sherry

Chimuka Mweemba

Civil Engineer

Mobile + 61 433 102 936 | cmweemba@pittsh.com.au | [Connect on LinkedIn](#)

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- runoff from the development must be 'visually free' of hydrocarbons prior to entering the public stormwater system.

Regards,

LEIGH WIGHTON

SENIOR OFFICER – DEVELOPMENT ENGINEERING



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3. Additional Peak Runoff Requirements: Are there any further regulations or guidelines regarding peak runoff limitations into the Council's network, beyond the standard OSD requirements?

pitt&sherry

Chimuka Mweemba

Civil Engineer

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Stormwater System Management Plan

73 Greenbanks Road

**Pitt & Sherry
(Operations) Pty Ltd**
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

Located nationally —

Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport





Hydraulic Sizing Assessment

Appendix G

Hydraulic Sizing Assessment

To Cam Nelson

From pitt&sherry

Date 19 February 2025

RE 73 Greenbanks Road – Water and Sewer Servicing Assessment

The following sections summarize the preliminary assessment of water and sewer services for proposed development at 73 Greenbanks Road, Hobart. It also contains information on existing services around the site and their potential impact on the proposed development.

1. Water Assessment

This section presents the findings of design and calculations for potable and fire water service.

1.1 Potable Water

1.1.1 Estimated Water Parameters

Equivalent Tenements (ET's) are calculated based on gross floor area of different Property Types planned within the development for both current and proposed. (Refer Appendix A & B for details)

- Current Equivalent Tenement (ET) for water = Unknown; and
- Proposed Equivalent Tenement (ET) for water = 0.6.

Water demands are calculated based upon “**TasWater Supplement MRWA V2.0 - 2.3.4.2 Demands General**”.

- Proposed Average day demand (AD) = 438.4 L/day
- Proposed Peak day demand (PD) = 1,100 L/day; and
- Proposed Peak hour demand (PH) = 0.03 L/s.

1.1.2 Water Meter sizes

The following water meter sizes are recommended for the development.

- DN63 for potable water; and
- DN100 for fire.

These are to be confirmed at next design stage.

1.1.3 Backflow requirements

At this stage, the development is envisaged to be used as predominantly a utilities site with a minor office space. As such, there will not be any condition, device or practice that has the potential to endanger health or cause injury in an event of cross contamination. Hence, the development is deemed to have Low Hazard rating for cross contamination. (AS 3500.1 Clause 4.3 Cross-connection hazard rating). A Double Check Valve is a recommended backflow prevention device for the proposed development.

This is to be confirmed at next design stage.

1.1.4 Point of connection

The new development will utilise an existing connection (A3253895) if it is of a sufficient size from the DN100 OPVC water main (A203632) at Greenbanks Road as indicated in the figure below, subject to approval from TasWater.

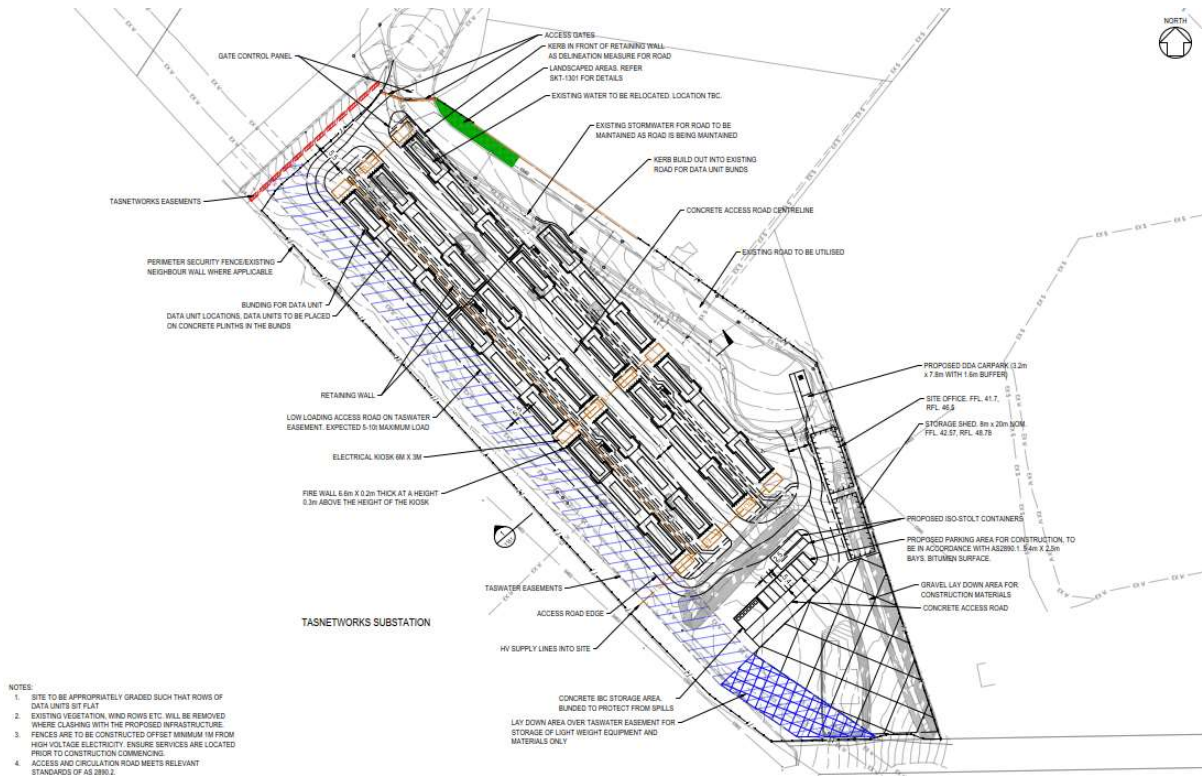


Figure 1: Concept service plan

Refer concept servicing plan for details. This is to be confirmed at next design stage.

1.2 Fire – requirements

Firefighting flow requirements are calculated based upon “TasWater Supplement MRWA V2.0 – 3.1.5 Fire flows”.

- Fire zoning: Industrial
- Design fire flows (FF): 20 L/s @250 kPa (new) or 300 kPa (old) minimum residual pressure from two adjacent hydrants @ 10 l/s for a period of 4 hours; and
- Background demand (2/3 PH): 0.267 L/s.

2. Sewer Assessment

This section presents the findings of design and calculations for sewer service.

2.1 Estimated Sewer Parameters

Equivalent Tenements (ET's) are calculated based on gross floor area of different Property Types planned within the development for both current and planned. (Refer Appendix A & B for details)

- Current Equivalent Tenement (ET) for sewer = Unknown; and
- Proposed Equivalent Tenement (ET) for sewer = 1.0.

Dry and wet weather flows for sewer are calculated based on "WSA 02-2014-3.1 - Section C1 of Appendix C Flow Estimation for Undeveloped Areas". (Refer Appendix B for details)

- Average dry weather flow (ADWF) = 0.01 L/s; and
- Peak Dry Weather Flow (PDWF) = 0.14 L/s.

A fixture unit loading assessment was also conducted based on the architectural plans provided and assuming a dual sink on each floor for tenancy (dual kitchen/kitchenette sink). This assessment concluded the following units and their loadings in the table below.

Table 1. Fixture Unit Loading Assessment (AS/NZS 3500.2 6.3).

Fixture	Number of Fixtures	Fixture rating	Total Loading
Sink	3	1	3
Bathroom group in a single room (basin, bath, shower, water closet)	1	6	6
Shower	1	2	2
Water closet	3	4	12
Dual Kitchen Sink	1	3	3
			26

With the total loading of 26 we can reverse engineer a flow using Table 8.2.2(A) from AS/NZS 3500.2. This Table states 27 units can be used for an 80mm diameter pipe for vented drains at 2.5% grade. Using Mannings formula and assuming a half full pipe we receive a Peak Dry Weather Flow of 2.91 L/s (Noting that wet weather flow is not applicable in a building) shown in the calculation below:

$$Q = \frac{1}{n} AR^{\frac{2}{3}} \sqrt{S}$$

Flow (cu.m/s) for full pipe

$$Q = \frac{1}{0.01} \times \left(\frac{0.08\pi}{4} \right)^2 \times (0.08\pi)^{\frac{2}{3}} \times \sqrt{0.025}$$

Flow (cu.m/s) for full pipe

$$Q = 0.00521 \times 1000 = 5.825$$

Flow (L/s) for full pipe

Therefore, assumed $Q = 2.91 \text{ L/s}$ for a half full pipe

As 2.91 L/s is greater than 0.14 L/s we will assume that the Fixture Unit Loading assessment is the assessed flow for the development application.

2.2 Point of discharge

Sewer from the new development is proposed to be discharged to existing DN150 PVC sewer main (A3183065) running into the property from the easement along the back of 67 Greenbanks Road (refer Figure 1). Existing sewer property connection to be used, if possible. The size of the pipe (A3333575) is unknown so if it is less than DN80 it will need to be upgraded to that size.

Refer general arrangement plan **S-P.24.1232-CIV-DRG-1201** for details. This is to be confirmed at next design stage.

3. TasWater Infrastructure

3.1 Existing water

- The property has an existing connection to the watermain along Greenbanks Road from a DN100 OPVC water main (A203632).

Note: The pressure zone for this water main is BRW1 which is supplied from the Bridgewater Reservoirs with BWL = 85.000m (AHD) and TWL = 91.000m (AHD). Given the approx. level at ground floor of the development of 41.500m (AHD) approx. available static pressure for the building will be in the order of 455kPa (45.5m) based on the reservoirs being $1/3$ full. TasWater can/will provide available dynamic pressure upon request for 1) peak hour demand & 2) $[2/3 \times \text{peak hour demand}] + \text{fire flow}$.

3.2 Existing sewer

The flowing TasWater infrastructures exist in the vicinity that could be used to service the proposed development.

- DN150 PVC sewer main (A3183065) running in easement along the back of 67 Greenbanks Road.

Yours sincerely



Connor Miller
Experienced Civil Engineer



ET Calculations (Proposed)

Appendix A

DEVELOPMENT LAND USE SUMMARY		GROUND LEVEL	TOTAL
---------------------------------	--	-----------------	-------

PROPERTY TYPE	ET Code	ET Rates	Quantity/Area (m^2)	
Office	BE04		160	160

ET Calculation (Water)				
Office	BE04	0.004	0.6	0.6
Equivalent Tenements			0.64	0.6
Average Day Demand (AD)	685	L/d	438.40	438.4
Mean Day Max Month Demand (MDMM)	1.5	kL/d	0.66	0.7
Peak Day Demand (PD)	2.5	kL/d	1.10	1.1
Peak Hour Demand (PH)	2	L/s	0.03	0.03

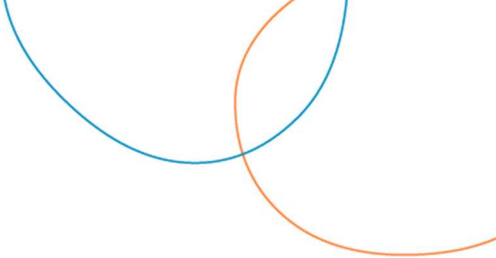
TasWater Supplement MRWA V2.0 - 2.3.4.1
(MDMM/AD = 1.50)

TasWater Supplement MRWA V2.0 - 2.3.4.2
(PD/AD [Tourism] = 2.50)

TasWater Supplement MRWA V2.0 - 2.3.4.3
(Peaking Factor = 2 i.e. PH/PD = 2.0)

ET Calculation (Sewer)				
Office	BE04 (b)	0.006	1.0	1.0
Equivalent Tenements			0.96	1.0
Loading rate	450	L/ET/day		
Average Dry Weather Flows		l/s	0.01	0.01
Total		kL/day	0.43	0.4

NOTE: Equivalent Tenements (ET) is calculated based floor area, building drawing dated 08/11/2024.



Environmental Management Plan – Schematic Design

Appendix H

An aerial photograph showing a multi-lane asphalt bridge spanning a body of water. The water is a vibrant turquoise color, with white foam from waves breaking against a rocky shoreline on the left. The background features steep, rocky cliffs with patches of green vegetation. The bridge has several cars driving on it, and its shadow is cast onto the water below.

Environmental Management Plan – Schematic Design

73 Greenbanks Road – Utilities
infrastructure

Prepared for
DAME

Client representative
Cam Nelson & Dale Andersen

Date
24 March 2025

RevA

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Reviewed by — Adam Bishop		Date — 18/03/2025
Authorised by — Adam Bishop		Date — 18/03/2025

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Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Environmental Management Plan – Schematic Design	CD	AB	AB	18/03/2025

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1. Introduction

1.1 Background

DAME Technologies Pty Ltd (DAME) is proposing to construct a utilities infrastructure facility at 73 Greenbanks Road, Bridgewater. The utilities infrastructure facility will operate via direct HV connection from the TasNetworks Bridgewater Substation. It will operate as a Frequency Control Ancillary Service provider as an interruptible facility, thus aiding in grid stabilisation within standard operational limits by maximising energy use during off-peak times and minimise it during peak periods. The provision of such facilities is expected to be increasingly important as the renewable energy sources are further integrated.

The facility will feature 11 data units, each of which will comprise two 1.25 MW immersion-cooled data modules (shipping container-sized module filled with data miners), and one 2.5MW dielectric-direct cooling module (shipping container-sized module comprising four large fans). Each unit will be powered by a 3,000 kVA transformer. The layout of a data unit is shown below in Figure 1 and Figure 2. Please note dimensions are in the imperial system.

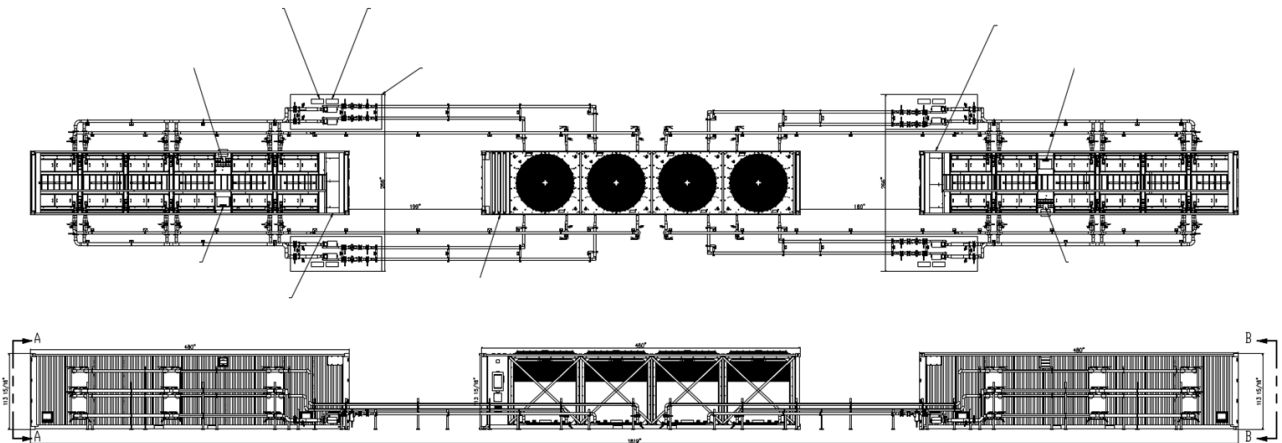


Figure 1: Module set - aerial and side profile

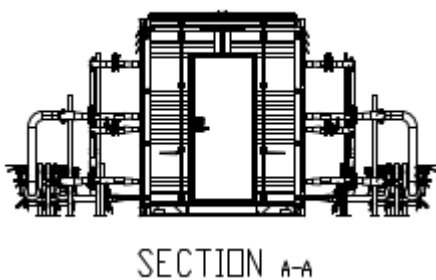


Figure 2: Module - front profile

Data units will comprise servers, data storage drives, and network equipment. The facility will receive 11kV from the TasNetworks Bridgewater Substation and distribute it among the data modules (miners) and variable frequency drives (VFDs) at 420V level. Power is distributed through the Main Switchboard (MSB) and a series of distribution sub-boards connected to the servers and other gears such as Power Distribution Units (PDUs) and Remote Power Panels (RPPs). The facility includes the infrastructure, systems, and processes required for Power System Management (PSM). This includes power supply distribution, backup systems, and management tools to ensure that the facility can operate continuously and effectively without any interruptions.

The key responsibilities of the facility management system are:

- Planning and execution of a robust backup methodology
- Disaster recovery
- Continuity planning
- Day-to-day technical support; and
- Emergency support.

The development will also feature:

- a site office
- a site shed
- circulation roads
- a car park; and
- a laydown area.

As part of the facility development, it is proposed that TasNetworks provide two staged connection points within the Substation, a 10MVA connection on 11kV A bus switchboard, and a 10MVA and 7.5 MVA connection on 11kV B bus switchboard. 11kV cables will be provided between the Substation and the facility, although it has not yet been ascertained as to whether these will be underground or overhead.

1.2 Purpose

This report has been developed to satisfy Clause 1 of the Request for Further Information (RFI) provided by Brighton Council on 5/02/2025 in reference to the application for Planning Permit (DA 2024/00244) for Electrical Reticulation Services and Associated Services, 73 Greenbanks Road, Bridgewater and 23 Weily Park Road, Bridgewater.

The RFI, concerning the development of an Environmental Management Plan (EMP), was as follows:

1. *Provide an Environmental Management Plan (EMP) that includes detailed management of contaminates around stormwater catchments and includes a risk assessment.*

Advice: Due to the potential environmental hazards of the cooling fluid used, an Environmental Management Plan (EMP) is necessary. This needs to address the construction and provide comments as to how the plinths, handstand areas and safety barrier referenced in the report and any other environmental protection measures proposed are sized mitigate all environmental concerns. The storage of such materials, the servicing of the machines, drainage and replacement of the fluid (if applicable) should all be included in the report. Other traditional environmental factors such as noise, dust, etc. should also be commented on in this report. The EMP needs to be done by a suitably qualified environmental consultant with experience in such developments.

We appreciate Council's request for an EMP detailing the management of contaminants around stormwater catchments, along with a risk assessment.

Under the General Industrial Zone and Brighton Industrial Hub SAP, provisions regulating traditional environmental factors such as noise and dust are precluded, as the zone is specifically designed to accommodate industrial activities that cannot be located elsewhere. Within this zone, utilities are a permitted use, and minor utilities do not require a permit. The relevant attenuation codes, which assess noise and other potential pollutants, do not apply to the proposal as it is not classified as an attenuating activity.

Nonetheless, the following EMP provided demonstrates that the proposed development will not negatively impact stormwater systems and that any potential risks can be effectively managed. The assessment also addresses

construction elements, such as plinths, handstand areas, and safety barriers, as well as the relevant environmental protection measures to manage contaminants around stormwater catchments. Furthermore, it confirms that the proposal will not disrupt adjacent industrial activities.

The EMP has been submitted to show that the facility will operate in compliance with relevant legislation outside of LUPAA (ie EMPCA, building act, etc). However, further testing is required before operations can commence. Due to the emerging nature of the industry, there is insufficient information to fully assess potential impacts, so testing will be conducted once operations begin. If additional works are necessary, the planning permit can be amended, or a new development application can be submitted.

1.3 Objectives

The objectives of this EMP are to:

- Provide information relating to the operation of the site
- Provide a practical plan for the ongoing operation of the site
- Identify key environmental risks and minimise adverse environmental impacts from operation of the site
- Produce a framework for managing impacts including practicable and achievable performance requirements and a system for monitoring, reporting and implementing corrective action
- Provide evidence of compliance with legislation, policies, guidelines and requirements of relevant authorities;
- Identify roles and responsibilities; and
- Provide the community with assurance that management of the site will be conducted in an environmentally, socially and economically acceptable manner.

1.4 Report limitations

This Draft Environmental Management Plan completed following Schematic Design is a working document that will continue to be developed during the Detailed Design phase of the project. In its current form, it is proposed to provide information to close out the RFI.

2. Roles and responsibilities

Role	Responsibilities
DAME Site Operator	Responsible for overall implementation of the requirements of the EMP
Waste Contractor/s	Responsible for safe removal of waste stored on site
Construction Contractors	Responsible for adherence to the EMP during site construction
Maintenance Contractors	Responsible for maintaining equipment/ infrastructure to the requirements of the EMP during operation

3. Emergency Response

Site Emergency Response Plan – **to be developed**

4. Environmental Setting

4.1 Location

The site is located at 73 Greenbanks Road, Bridgewater Tasmania, within the Brighton Industrial Hub. The site, and the site location in the local context, is shown below in Figure 3 and Figure 4, respectively. It is bounded by the TasNetworks Bridgewater Substation along the western and southern boundaries, Weily Park along the eastern boundary, and an industrial development along the north-eastern boundary. The site is accessed via an existing access road from a cul-de-sac at the southern end of Greenbanks Road.

It is primarily a greenfield site, other than the existing service road and utilities, which are understood to have been constructed as part of a planned 9-lot subdivision no longer proposed by the current owner.



Site
73 Greenbanks Road

pitt&sherry

Scale: 1:1,000 @A3
Coordinate System: GDA2020 MGA Zone 55
MAP REF: P.24.1232
AUTHOR: NPA
REV: A
DATE: 3/12/2024
DATA SOURCES: Aerial imagery from ThelIST
Data from ThelIST

LEGEND
Cadastral Parcels
Site



Figure 3: Site



Figure 4: Site locality

Some images of the site are shown below in Figure 5 to Figure 7.



Figure 5: In the vicinity of the existing water connection from TasNetworks – looking north-west



Figure 6: On the existing service road – facing south



Figure 7: Near the centre of the site - facing east

The land parcel is classified as General Industrial under the *Tasmanian Planning Scheme* (the Planning Scheme). The site is also subject to the following code overlays:

- Electricity Transmission Infrastructure Protection Code – substation facility buffer area (excludes north-eastern portion of the site)
- Bushfire-prone Areas Code – Bushfire-prone areas (entire site); and
- Attenuation Code – Attenuation area – Bridgewater Quarry (north-eastern portion of the site).

The code overlays are shown below in Figure 8.

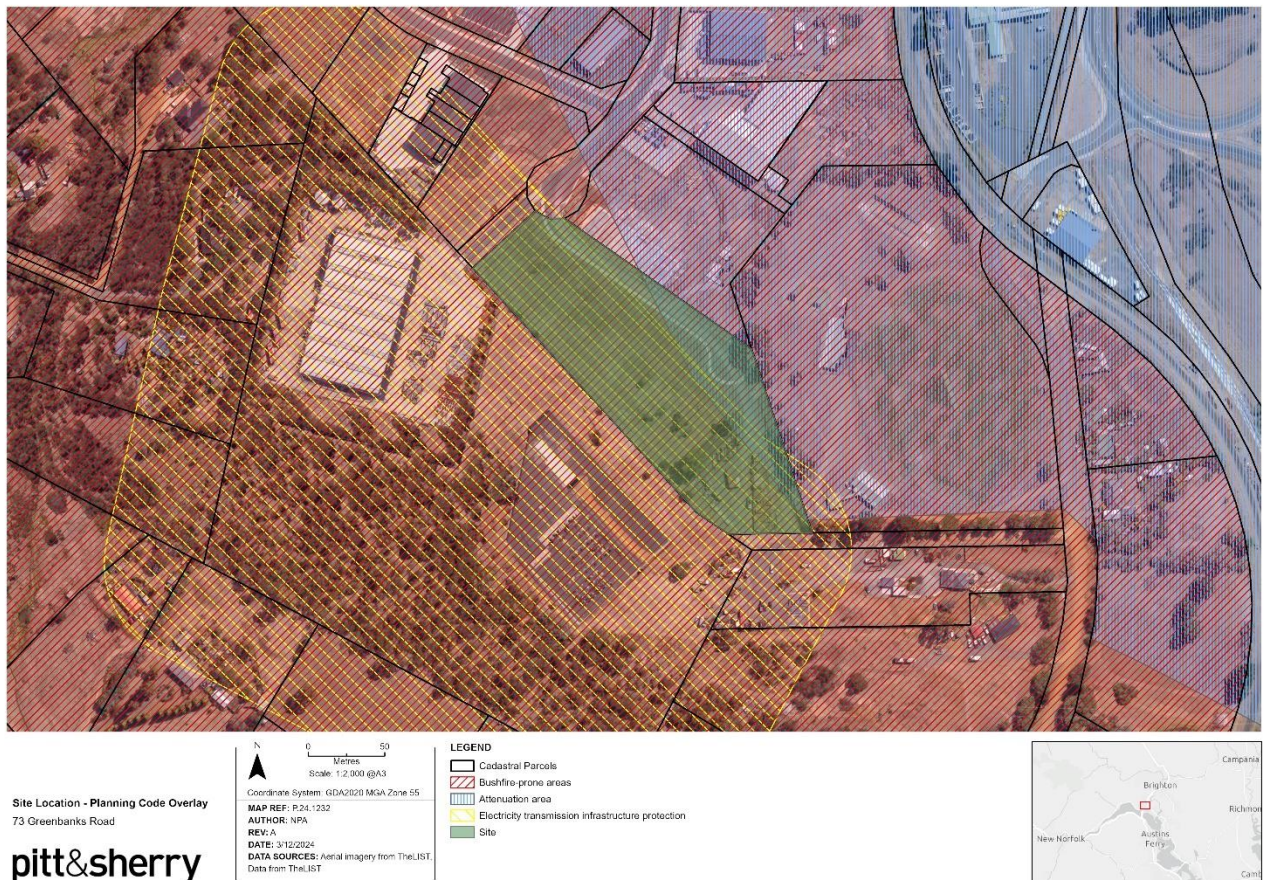


Figure 8: Planning Code Overlay

4.1.1 TasWater easements

Two TasWater easements are located near, and run parallel to, the south-west boundary of the site. The easements are 4.00m wide and 10.06m wide respectively and are located directly adjacent to one another. The easements contain a 450 mild steel cement lined (MSCL) reticulation main and a 571 MSCL bulk transfer main. Discussions have already begun with TasWater regarding the easements and their restrictions around them.

4.1.2 Other utilities

The existing site has a number of other underground utilities located throughout including:

- Sewer
- Water reticulation
- Stormwater; and
- Underground electricity.

These services, as well as the water mains, are shown in the survey below.



Figure 9: Survey

4.1.3 Existing road

It is understood that the existing road and cul-de-sac were designed and constructed in accordance with the Tasmanian Municipal Standard Drawings (LGAT standards) for residential roads and is thus approximately 8-9m wide. The cul-de-sac, however, has a 12.5m radius, which meets the requirements of the LGAT standards for industrial subdivisions. The road has a footpath on the southern side and is unsealed.

4.1.4 Geology

An initial geotechnical investigation undertaken by Statewide Geotechnics titled *Geotechnical Investigation – Proposed Commercial Development 73 Greenbanks Road, Bridgewater* was undertaken at the site in early 2024. The investigation included a desktop geotechnical assessment, drilling of boreholes at five separate, evenly-spaced locations across the site, geotechnical logging and sampling of the soil profile for analysis and preparation of the report, including recommendations for earthworks and foundation design.

Indicated by the 1:25,000 geology map of the Brighton area, the site and surrounds is underlain by Jurassic Dolerite at shallow depths.

The summary of the borehole data generally showed refusal on MW dolerite at 0.9m to 1.4m depth. Refusal also occurred on cobbles/ boulders at multiple locations. Subsurface layers typically comprised loose clayey silt on the surface, very stiff to hard sandy silty clay from roughly 0.2m to 0.9m, and hard sandy clay below this until refusal.

It is stated that the site can be classified as 'Class M' material based on *AS 2870:2011 – Residential Slabs and Footings* with the underlying dolerite rock layer classified as "Class A' material.

4.1.5 TasNetworks Bridgewater Substation

As discussed, the TasNetworks Bridgewater Substation is located west of the 73 Greenbanks Road site. It comprises two main developments, a substation and a large warehouse. The former is accessed via an easement from Weily Park Road, whereas the latter is accessed from Greenbanks Road. The site is zoned as Utilities under the Planning Scheme.

4.2 Environmental Aspects

4.2.1 Natural Values

The following requirements apply to the management of biodiversity and natural values in Tasmania and are applicable to ongoing management of the activity:

- EMPC Act
- Commonwealth EPBC Act 1994
- *Weed Management Act 1999*
- *Tasmanian Nature Conservation Act 2002*
- *Tasmanian Threatened Species Protection Act 1995*
- *The Tasmanian Reserve Management Code of Practice 2003*
- DPIPWE (2015) *Weed and Disease Planning and Hygiene Guidelines* - Preventing the spread of weeds and diseases in Tasmania
- *Tasmanian Washdown Guidelines for Weed and Disease Control 2004*; and
- Guidelines for Natural Values Assessments.

A preliminary desktop review of all environmental aspects on the site was conducted using the Tasmanian Government, Land Information System Tasmania (LISTmap). The findings of this review are provided in Table 1 below.

Table 1: Natural values summary for areas surrounding the Site

Ecological value	Description	Comment
Reserves and geoconservation	<ul style="list-style-type: none"> The site is not located within a Reserve; and No geoconservation areas within 500m. 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area.
Threatened flora – State significance	<ul style="list-style-type: none"> There are 13 threatened flora of State significance recorded within a 500m buffer. Refer to Natural Values Atlas Report for details. 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area. No threatened flora located on the development.
Threatened flora – national significance	<ul style="list-style-type: none"> One species of threatened flora of national significance was recorded within a 500m buffer: <ul style="list-style-type: none"> Grassland flaxlily (<i>Dianella amoena</i>) 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area. No threatened flora located on the development.
Threatened fauna – State significance	<ul style="list-style-type: none"> No threatened fauna species of State significance are recorded within a 500m buffer. 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area.
Threatened fauna – national significance	<ul style="list-style-type: none"> No threatened fauna species of national significance are recorded within a 500m buffer. 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area.
Raptor nests and sightings	<ul style="list-style-type: none"> No raptor nests and sightings recorded within the site footprint No raptor nests and sightings recorded within a 500m buffer. Low quality wedge-tailed eagle nesting habitat identified within 200m. 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area.
Weeds	<ul style="list-style-type: none"> One <i>Weed Management Act 1999</i> listed weed within the development footprint <ul style="list-style-type: none"> fennel (<i>Foeniculum vulgare</i>) 12 <i>Weed Management Act 1999</i> listed weeds within a 500m buffer. Refer to Natural Values Atlas Report for details. Three priority weeds are reported within a 500m buffer: <ul style="list-style-type: none"> cootamundra wattle (<i>Acacia baileyana</i>) Weld (<i>Reseda luteola</i>) Weeping white broom (<i>Retama raetam</i>) 	<ul style="list-style-type: none"> Highly modified footprint Highly developed area.
Tasmanian vegetation communities (TASVEG 4.0)	<ul style="list-style-type: none"> Vegetation communities within the development footprint are recorded primarily as: <ul style="list-style-type: none"> Urban areas (FUR) Vegetation communities within a 500 m buffer are recorded as: <ul style="list-style-type: none"> Dry eucalypt forest and woodland (DVG) Extra urban miscellaneous (FUM) Permanent easements (FPE); and 	<ul style="list-style-type: none"> Highly modified footprint, with no native vegetation impacted

	<ul style="list-style-type: none"> ○ No threatened vegetation communities within a 500m buffer. 	
Freshwater ecosystem values	<ul style="list-style-type: none"> • Two waterway and coastal protection features (buffer area) are located within 500m buffer; • Several perennial water bodies were identified within a 500m buffer; • No rivers reported within a 500m buffer; • No estuary features reported within a 500m buffer; and • No groundwater dependent ecosystems reported within a 500m buffer. 	<ul style="list-style-type: none"> • Highly modified footprint • With appropriate stormwater management plan, no likely impact to freshwater ecosystem values.
Aboriginal Heritage	<ul style="list-style-type: none"> • No constraint based on desktop results. Aboriginal Heritage Tasmania (AHT) did not report any results pertaining to Aboriginal heritage records on the 13 February 2025. 	<ul style="list-style-type: none"> • Highly modified footprint
Acid Sulfate Soils	<ul style="list-style-type: none"> • None mapped in on the development. • Coastal Acid Sulphate Soils with low probability of occurrence mapped within 1km. 	

It should be noted that the lack of a record or result in a particular database (as listed in Table 1) does not signify that there is no risk. The lack of data could be related to the lack of survey for that particular matter in this area.

4.2.2 Land use

The development is located adjacent to a recreation reserve (Weily Park) and Rural Living zoned land.

4.2.3 Sensitive Receptors

There are residential properties within 500m buffer of the site.

5. Site plan

A general arrangement plan of the proposed development is shown below in Figure 10.

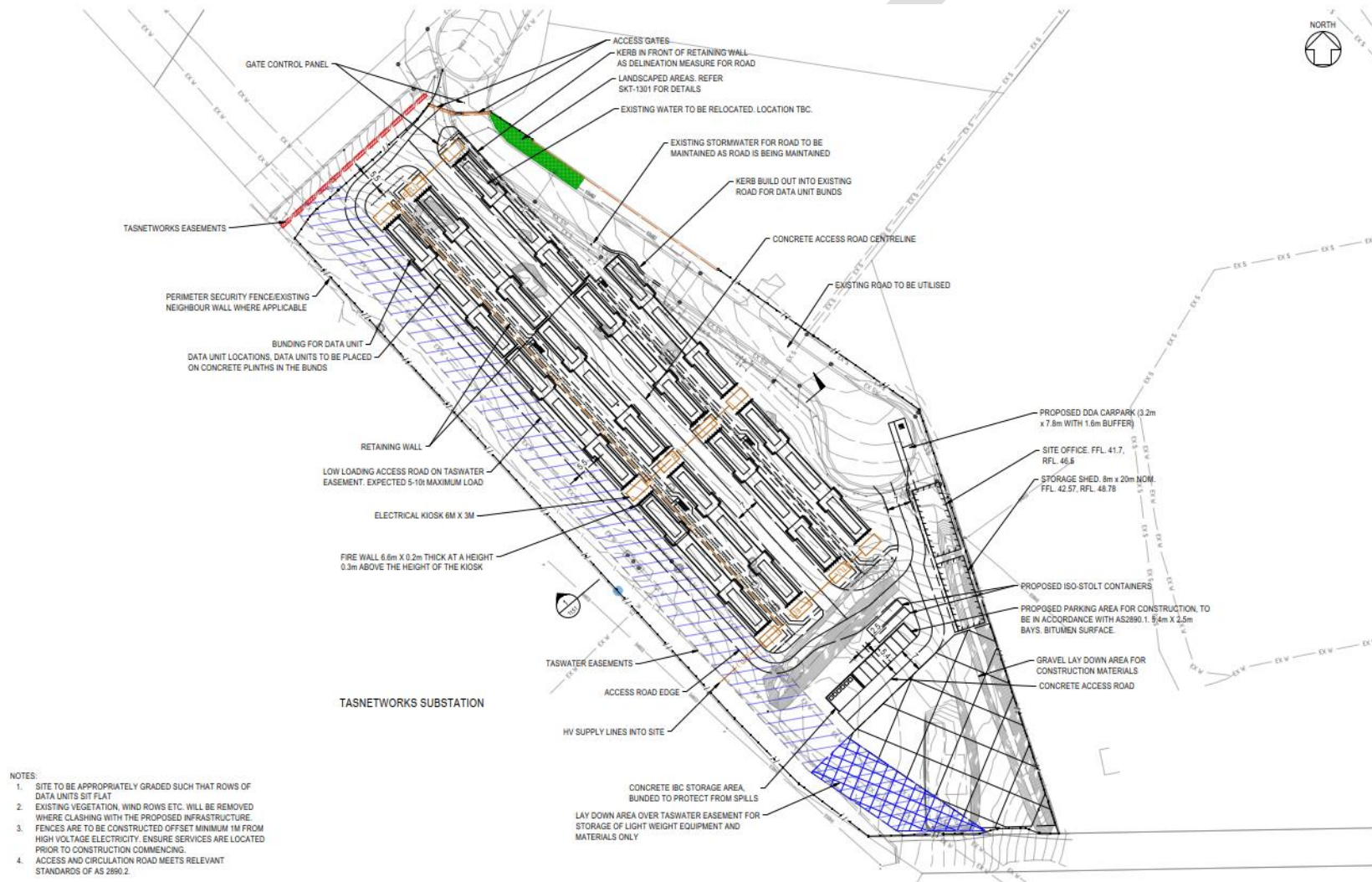


Figure 10: Site plan

5.1 Plinths

Data units and transformers will be located on plinths such that they are not flooded in heavy rains. Plinths will be steel-reinforced concrete and thus impermeable.

Plinths within bunds (those supporting data units) are proposed to extend a minimum of 25mm above the height of the data unit bunds to ensure flooding of data and cooling modules does not occur. They will be designed for proposed maximum loadings and such that data units remain flat (i.e. account for grading within the bund). Plinths within bunds will be approximately 3m wide, 0.5m long and 0.1m high. Steps will be provided to access data units and transformers.

5.2 Hardstands

Hardstands are proposed in the areas around the bunds, the laydown area and generally anywhere the bunds, roads and buildings aren't. These will be designed to take the required construction or operational loads, governed by crane weights, truck weights, and the weight of data units and fluid stores. These hardstands will be designed to the applicable standards.

Hardstands will have no environmental implications as they are provided for structural support at ground.

5.3 Safety barriers

Safety barriers will be considered around site where higher risks of collisions between vehicles and equipment/ infrastructure are identified, including where piping, data units, retaining walls and fluid stores are in close proximity to circulating traffic. The design of safety barriers is a detailed design action, but will account for the largest design vehicle, proposed vehicle speeds, and consider maximum deflections. Safety barriers are expected to be W-beam road safety barriers.

The provision of safety barriers will greatly reduce the likelihood of spills of environmentally sensitive materials occurring from nuisance hits.

6. Potential Environmental Impacts

6.1.1 Biodiversity

Based on desktop assessment, substantial impact to biodiversity in the area is unlikely.

6.1.2 Heritage

No constraint based on desktop results. Aboriginal Heritage Tasmania (AHT) did not report any results pertaining to Aboriginal heritage records on the 13 February 2025. This is a non-invasive task to be undertaken. An Unanticipated Discovery Plan should be in place in case of a suspected find.

6.1.3 Noise

Construction

Construction hours are envisaged to be Monday to Friday from 7:00am to 5:00pm and where required on Saturdays between 9:00am and 2:00pm.

Noise will be generated during construction, primarily by the following activities:

- Earthworks
- Pavement works
- Trenching/ directional drilling; and
- Concrete works.

Shielding will be placed around excessively noisy equipment to limit impact on surrounding sensitive receivers. Construction is proposed to occur during standard day time construction hours. No night time construction work is proposed.

Operation

Noise will be generated during operation of the data units. Noise will be primarily generated by the following infrastructure:

- Cooling module 20HP fans x 44
- Data unit 15HP pumps x 88; and
- 3.0MVA transformers x 11.

Notably, pumps are externally mounted.

Once design details are finalised, an acoustic consultant will be engaged to discern appropriate noise control measures to ensure that noise to the nearest sensitive receivers doesn't adversely impact amenity or cause environmental nuisance. Noise mitigation measures may include acoustic enclosures and noise walls.

A noise survey will be completed during commissioning to ensure target noise levels are achieved.

The nearest data unit is approximately 175m away from the residence at 21 Weily Park Bridgewater. The next nearest residential property is located approximately 225m away from the nearest data unit.

6.1.4 Air Quality

Dust

Dust will be produced during construction activities. Given the relatively small scale of construction works, appropriate management of dust should be achieved using conventional construction management techniques, such as:

- Monitor activities and cease or modify work practices when dust generation is occurring
- Monitor weather conditions and avoid bulk earthworks in hot, dry, windy weather
- Employ dust suppression techniques such as watering of exposed soils and covering dusty stockpiles
- Implement progressive and final stabilisation of exposed soils as early as practicable

Dust will not be produced during operation activities.

Odour

Odour is unlikely to be an issue during construction. Odour generation could occur during operations in the event of hydrocarbon spills which could generate a slight hydrocarbon odour as per Safety Data Sheet. Fluid should generally be contained within containers or piping other than during spill or re-fill of the system. ISO STOLT containers that will contain additional fluid are to be closed other than when re-filling the system.

6.1.5 Water Quality

Construction activities will expose soil surfaces, increasing the likelihood of soil erosion and sediment run off in the event of rainfall.

Given the relatively small scale of construction works, a conventional suite of erosion and sediment controls should achieve a suitable level of water quality protection. An erosion and sediment control plan (ESCP) should be prepared and implemented by for the construction stage.

Operational maintenance and spills may result in impacts to surface water runoff following rainfall or washdown activities. Suitable containment and offsite disposal of potentially contaminated stormwaters should effectively mitigate this risk.

6.1.6 Weeds and Pest species

There are weeds identified on and adjacent to the site. Control of these will be required.

6.1.7 Bunding and Waste Management

Bunds are located under data units as a provision for leaks and spills. Bund capacity has been designed in accordance with AS 1940:2017, plus a tolerance for rainfall. The minimum height of the bund will be 75mm.

The baseline maximum spill has been calculated to be approximately 4,100L per data unit (25% of total capacity), aligning with the requirements of AS 1940:2017. This is understood to be the largest of the following:

- At least 110% of the volume of the largest storage vessel; or
- At least 110% of the combined volume of any inter-connected vessels within that bunded area; or
- At least 25% of the total volume of all vessels stored in that bunded area; or
- The capacity of the largest vessel plus the output of any appropriate fire suppression system fitted, over a 20-minute period.

Vessels (tanks which will be filled with cooling fluid) will have a maximum capacity of 170L and the pipes themselves will have a capacity of 136L.

The bund area is approximately 234m². Accounting for the inclusion of plinths, on which the data units will sit, a conservative 220m² is assumed as storage area. This would require approximately 1.87mm of storage of the cooling fluid.

In accordance with the EPA's Bunding and Spill Management Guidelines, bunds will be roofed, where possible, with roofing proposed to extend 12 degrees beyond vertical to account for rain angle. Constraints with roofing include the requirement for open air surrounding the cooling modules, and the impedance of roof overhang on circulation roads within the site. It is proposed that the area within the bund protected by the roof (inclusive of the 12-degree extension beyond the vertical), will comprise ~176m² of the ~234 m² bunded area. This leaves a remaining 58m² unprotected, however, approximately 30m² of that will be above the cooling module which is expected to push the rain away and onto the roof or ground due to the air blowing out of the fans. It is also noted that rain can enter at angles steeper than 12 degrees, however, the bund has been designed as per the guidelines and there are a number of factors reducing water in the bunds that have also not been accounted for.

The wettest month in the locality is August, which has a 95th percentile rainfall of 168mm. This rainfall accounts for approximately 9.8 cubic metres of rain (does not include potential fan area savings) in the bund spread over the 220m² of bund storage area will be 44.3mm of height. A leak of 4,100L would increase the height of liquid in the bund to approximately 46.2mm of height.

To protect against a 99th percentile 24-hour rainfall of 110mm, which is expected to generate approximately 29.0mm of stormwater into the bund, it is proposed that bunds are emptied monthly, or, when liquid in the bund reaches 45mm in height to limit the likelihood of overtopping. During dry months, frequency may be decreased. It is proposed that bund depth is monitored regularly, either via maintenance personnel, or electronically, to ensure adherence to proposed schedule.

In accordance with the EPA's Bunding and Spill Management Guidelines, fluid in bunds will be disposed of by a liquid waste contractor as advice received from TasWater noted that a trade waste agreement was not appropriate. Given that annual rainfall in the Brighton is 487mm, the number of 10-tonne (8kL) trucks required to empty bunds on an average year of rainfall could be expected to be less than 100.

Private waste contractors will dispose of other on-site waste appropriately.

6.1.8 Land Contamination

Spills of hazardous substances may result in impact to land and groundwater. Adequate spill recovery and emergency response processes will be required.

6.1.9 Miner cooling fluid

Miner cooling fluid is proposed to be Shell Immersion Cooling Fluid S3 X.

Based on the Safety Data Sheet, the fluid is a Class 2 combustible liquid (flash point 98 degrees C) and a Category 1 aspiration hazard. The fluid is not classified as a hazardous chemical prescribed in Schedule 11 of The Work Health and Safety (WHS) Regulations and as such does not require the preparation of a manifest or notification to the regulator. As the cooling fluid is a combustible liquid the requirements of Australian Standard – AS 1940: The Storage and Handling of Flammable and Combustible Liquids apply. These requirements are met through the design, including bunding.

Approximately 16,400L of the cooling fluid will be circulated through each data unit. As such, a total of 180,400L of cooling fluid will be stored in data units on the site. Additional cooling fluid for top ups is proposed to be stored in ISO STOLT containers on the site.

6.1.10 Transformer oil

As discussed, transformers are yet to be specified or ordered.

Based on the size of the transformers, they are each expected to have a capacity of between 1,000L and 2,000L. As such, the 11 proposed transformers may hold up to 22,000L of oil.

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7. Cooling Fluid Management

7.1 Storage

Miner cooling fluid will be stored primarily within the data units. The fluid is circulated through the system. In the two data modules within the data unit, approximately 14,990 litres of the fluid are stored within the mining tanks. The remaining fluid is stored within pipes which distribute fluid between the data modules and cooling module. As discussed, data units will be banded to contain any spills.

Additional cooling fluid will be stored in ISO STOLT containers which are self-bunding.

In accordance with the Shell Immersion Cooling Fluid S3 X Safety Data Sheet, the liquid will be stored locked up and tightly closed, be labelled and kept in a cool, well-ventilated place. Containers should be mild steel or high-density polyethylene.

7.2 Handling, servicing and replacement

To fill data units, it is proposed that intermediate bulk containers (IBCs) are utilised to transport liquid from ISO STOLT containers to tanks within data modules. Care is to be taken during both filling of the IBCs and filling of the tanks. IBCs will be transported around the site on forklifts. Spill kits are to be on hand in case of minor spills during these processes. Any spills collected by spill kits should be appropriately disposed of by a liquid waste contractor.

Persons will be in contact with the cooling fluid during installation of the miners within the tanks in which they are housed. The Safety Data Sheet provides further information regarding how the fluid should be handled. Contact with the skin should be avoided, as should inhalation of vapour and mists.

Appropriate gloves and respiration protection may be utilised, depending on the extent of exposure. Handwashing is to occur following contact with the liquid. Eye protection should also be utilised when connecting miners, noting the likelihood of splashing.

7.3 Drainage

Drainage of the fluid from the data units is not expected to be required under normal circumstances. If necessary, fluid should be emptied into appropriate waste containers to be collected by a liquid waste contractor. Spills within data modules should be cleared utilising appropriate spill kits.

Drainage of spills into bunds is addressed above.

7.4 Monitoring

Operators or contractors will undertake regular inspection of bund walls and pipes to limit the consequence of any potential leaks/ spills.

8. Environmental Risk Assessment

8.1.1 Method

The preliminary risk assessment of the development is to be undertaken with consideration of risk management frameworks and processes as described in Australian Standard methodologies such as AS/NZS 4360: 2004.

Relevant risk matrices are provided in tables below.

Table 2: Hazard likelihood ranking table

Likelihood	Description
5. Almost Certain	> can be expected to happen
4. Likely	> once per year
3. Possible	> once or twice every five years
2. Unlikely	> Once or twice every ten years
1. Rare	> Once or twice every 100 years

Table 3: Hazard analysis and risk assessment matrix tables

Likelihood	Catastrophic	Major	Moderate	Minor	Insignificant
Almost Certain	Extreme	Extreme	Extreme	High	Moderate
Likely	Extreme	Extreme	High	Moderate	Moderate
Possible	Extreme	High	Moderate	Moderate	Low
Unlikely	High	Moderate	Moderate	Low	Low
Rare	High	Moderate	Low	Low	Low

8.1.2 Outcomes

Preliminary assessment of risks to identified environmental aspects and plausible incident scenarios associated with construction and operation of the development, given the location and nature of operational activities, are outlined in Table 4.

These identified risks and incidents have:

- Potential to expose workers and the community to harm, pose a risk of environmental harm, threaten critical control measures and risk to assets; and
- Been assessed using the matrices outlined in Table 2 and Table 3.

Preliminary assessment of risks based on environmental aspects and relevant impacts is in Table 4 below. **Note: Given the stage of the project, management plans will continue to be developed in the detailed design phase and will further advise this assessment.**

Table 4: Potential incident scenario assessment

Threat	Potential environmental risk	Event	Assessment of risk			Current or planned management measures mitigate to ALARP?	Major incident potential?	Existing Management Plan?
			Consequence	Likelihood	Rating			
Miner cooling fluid release	Impact on surface water discharge	Loss of containment	Moderate	Possible	Moderate	Yes	No	Under development
	Contamination of soil; and	Spill during maintenance						
	Contamination of groundwater.							
Transformer oil release	Impact on surface water discharge	Loss of containment	Moderate	Possible	Moderate	Yes	No	Under development
	Contamination of soil; and	Spill during maintenance						
	Contamination of groundwater.							
Fire	Vegetation fire	Unauthorized smoking by workers	Moderate	Unlikely	Moderate	Yes	No	Under development
	Equipment overheating and fire	Electrical fire	Moderate	Unlikely	Moderate	Yes	No	Under development
Natural event	Vegetation fire	Bushfire threatening infrastructure	Moderate	Rare	Low	Yes	No	Under development
	Impact on surface water discharge	Major flood	Moderate	Rare	Low	Yes	No	
		Seismic event	Minor	Rare	Low	Yes	No	
Noise	Impact to Sensitive Receptors	Construction	Minor	Possible	Low	Yes	No	Under development
		Operation	Moderate	Possible	Moderate	Yes	No	Under development
Dust	Impact to Sensitive Receptors	Construction and operation	Minor	Possible	Low	Yes	No	Under development

Stormwater run off	Impact on surface water discharge	Construction and operation	Minor	Possible	Low	Yes	No	Yes
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9. Environmental Management and Mitigation

Based on the risk assessment above, management and mitigation measures are required to adequately address identified threats. Note that management and mitigation should include, *but not be limited to*, those summarised below.

Where necessary, further measures are detailed in relevant management plans.

9.1.1 Sediment and Erosion Control

These mitigations are particularly relevant during construction activities.

Mitigation Measure	Accountability
Erosion and sediment controls must be designed, developed and implemented.	Construction contractor / Operator
Erosion and sediment controls, including clean water diversions, must be installed prior to commencement of ground disturbance. These controls must be maintained and remain in place until ground stabilisation has occurred.	Construction contractor
Cleared areas must be kept to a minimum and be progressively rehabilitated/revegetated as they become available.	Construction contractor

9.1.2 Flora and Fauna Management

Desktop assessment indicates no threatened species or habitat in the area, however general expectations are as follows.

Mitigation Measure	Accountability
Appropriate permission from council to be obtained prior to any vegetation clearance.	Construction contractor

9.1.3 Weeds, Pest and disease management

The presence of weeds in the area triggers these requirements.

Mitigation Measure	Accountability
All weed, pest and disease management and mitigation used for the site must be in general accordance with the Weed and Disease Planning and Hygiene Guidelines – Preventing the spread of weeds and diseases in Tasmania (DPIPWE, 2015).	Construction contractor
A weed management plan will be developed during detailed design, outlining appropriate processes for the removal of weeds on the site should they be observed during routine maintenance.	Construction contractor/ Operator

9.1.4 Noise and Vibration Management

Construction activities will require the use of heavy machinery and vehicle movements, necessitating relevant mitigation. Operation of the development will involve fewer vehicle movements, and operational noise is expected to be limited to that generated by the operation of the fan cooling systems.

Mitigation Measure	Accountability
All construction equipment must be serviced and maintained according to manufacturer's recommendations, or more frequently if required to minimise noise generated.	Contractor
All operational equipment must be serviced and maintained according to manufacturer's recommendations, or more frequently if required to minimise noise generated.	Operator
Position noisy construction equipment away from noise sensitive areas	Contractor
The type and location of environmental control equipment and devices to manage, mitigate and monitor noise and vibration impacts shall be detailed and maintained. Additional management and mitigation measures required to address site-specific conditions, legal requirements, and risk must be included.	Contractor/Operator

9.1.5 Air Quality Management

These mitigations are particularly relevant during construction activities.

Mitigation Measure	Accountability
Monitor activities and cease or modify work practices when dust generation is occurring	Contractor/Operator
Monitor weather conditions and avoid bulk earthworks in hot, dry, windy weather	Contractor/Operator
Spray carts and/or dust suppressants should be used on dust generating activities.	Contractor/Operator
All construction plant and equipment must be maintained in accordance with manufacturers specifications to minimise exhaust emissions.	Contractor/Operator
Areas of exposed soils are to be minimised.	Contractor/Operator
Following construction, any exposed soils are to be removed or appropriately vegetated and watered to reduce the likelihood of dust emissions.	Contractor/Operator
On site vehicle speed is to be limited to 10km/h.	Contractor/Operator
Waste bins are to be used for any general waste.	Contractor/Operator
To prevent odour release, miner cooling fluid should be contained within containers or piping	Contractor/Operator

other than during spill or re-fill of the system. ISO STOLT containers that will contain additional fluid to be closed other than when re-filling the system.

9.1.6 Heritage Management

Preparation of an unanticipated discovery plan is a prudent management measure for all construction activities.

Mitigation Measure	Accountability
An Aboriginal and European Heritage Unanticipated Discovery Plan (UDP) must be followed for any potential heritage discoveries.	Contractor/Operator

9.1.7 Environmentally Hazardous Materials Management

Appropriate storage and handling of all hazardous materials during construction and operations is required.

Mitigation Measure	Accountability
Storage and handling of environmentally hazardous materials must be in strict accordance with the applicable standards and MSDS for the substance and current MSDS's (published within the previous 5 years) must be available on site	Contractor/Operator
Refuelling must not occur within 30m of a waterway (without appropriate controls in place).	Contractor/Operator
Miner cooling fluid storages (including data units) are to be bunded; bunding is to be capable of holding fluid in instance of storage failure in accordance with AS 1940:2017.	Contractor/Operator
Appropriate controls will be enforced in accordance with the Fluid Safety Data Sheet regarding handling, storage and other matters	Contractor/Operator

9.1.8 Bushfire Risk Management

The development is in an identified bushfire-prone area.

Mitigation Measure	Accountability
All facilities, containers, storage sheds, vehicles and machinery will be fitted with a serviced fire extinguisher (relevant to works or area), which will be inspected and tagged as required by a suitability qualified person.	Contractor/Operator
A maintenance schedule is to be developed to manage the height of potentially contaminated stormwater in the bunds to limit the risk of overtopping in the instance of a severe rain event.	Contractor/Operator

9.1.9 Waste Management

All waste management activities shall be conducted in accordance with relevant regulations and guidance.

Mitigation Measure	Accountability
The relevant licenses of waste facilities utilised for the disposal or handling of waste should be obtained to ensure legal compliance.	Contractor
Adequate and appropriate waste storage must be present onsite at all times for all waste streams present.	Contractor
Waste storage must be clearly signposted to inform all project personnel of the correct material to be placed within each storage type. Waste containers must be regularly emptied.	Contractor
Maintain onsite an appropriate spill response and cleanup kit	Contractor/Operator

9.1.10 Contaminated Land Management

Site history indicates no previous contaminating activities. However, in the event of unanticipated finds note the following.

Mitigation Measure	Accountability
In the event unanticipated contaminated materials are discovered or suspected, works must cease and the Project Manager notified immediately. Classification of potentially contaminated soils is to be undertaken by a suitably qualified and competent person and a management plan developed if required. The assessment must be suitable to classify material in accordance with Information Bulletin No. 105 – Classification and Management of Contaminated Soil for Disposal.	All

9.1.11 Water Management

These mitigations are particularly relevant during construction activities.

Mitigation Measure	Accountability
Silt curtains must be used in waterways around activities that present a risk of sediment disturbance or sedimentation	Contractor

Aquatic spill kits must be present at activities that occur near or within waterways.	Contractor
Refuelling must not occur within 30m of a waterway (without appropriate controls in place).	Contractor

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Important information about your report

In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. The Report may only be used and relied on by the Client for the purpose set out in the Report. Any use which a third party makes of this document, or any reliance on or decisions to be made based on it, is the responsibility of the Client or such third parties.

The services undertaken by pitt&sherry in connection with preparing the Report were limited to those specifically detailed in the report and are subject to the restrictions, limitations and exclusions set out in the Report. The Report's accuracy is limited to the time period and circumstances existing at the time the Report was prepared. The opinions, conclusions and any recommendations in the Report are based on conditions encountered and information reviewed at the date of preparation of the Report. pitt&sherry has no responsibility or obligation to update the Report to account for events or changes occurring after the date that the report was prepared. If such events or changes occurred after the date that the report was prepared render the Report inaccurate, in whole or in part, pitt&sherry accepts no responsibility, and disclaims any liability whatsoever for any injury, loss or damage suffered by anyone arising from or in connection with their use of, reliance upon, or decisions or actions based on the Report, in whole or in part, for whatever purpose.

Natural Values Atlas Report

Appendix A

pitt&sherry

Natural Values Atlas Report

Authoritative, comprehensive information on Tasmania's natural values.

Reference:

Requested For:

Report Type: Summary Report

Timestamp: 02:31:35 PM Friday 14 February 2025

Threatened Flora: buffers Min: 500m Max: 5000m

Threatened Fauna: buffers Min: 500m Max: 5000m

Raptors: buffers Min: 500m Max: 5000m

Tasmanian Weed Management Act Weeds: buffers Min: 500m Max: 5000m

Priority Weeds: buffers Min: 500m Max: 5000m

Geoconservation: buffer 1000m

Acid Sulfate Soils: buffer 1000m

TASVEG: buffer 1000m

Threatened Communities: buffer 1000m

Fire History: buffer 1000m

Freshwater Ecosystem Values: buffer 1000m

Freshwater Ecosystem Values displayed:

Rivers

Lakes

Wetlands

Saltmarshes

Estuaries

Karst

Other freshwater ecosystem values

Tasmanian Reserve Estate: buffer 1000m

Biosecurity Risks: buffer 1000m

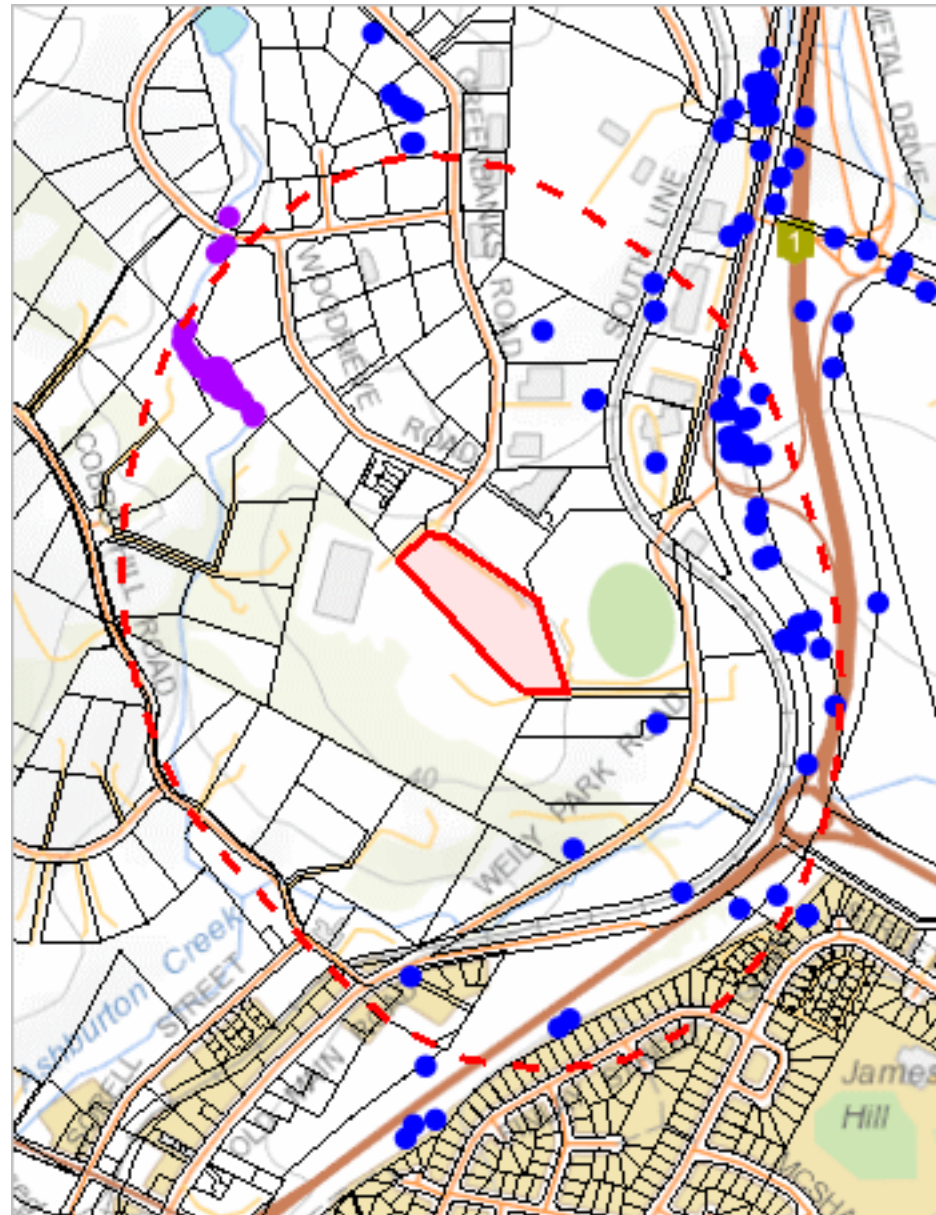


The centroid for this query GDA94: 518988.0, 5269086.0 falls within:

Property: 2843300

Threatened flora within 500 metres

519609, 5269893



518351, 5268280

Please note that some layers may not display at all requested map scales

Threatened flora within 500 metres

Legend: Verified and Unverified observations

- Point Verified

●

Point Unverified

▬

Line Verified

▬

Line Unverified

□

Polygon Verified

□

Polygon Unverified

Legend: Cadastral Parcels



Threatened flora within 500 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Austrostipa bigeniculata</i>	doublejointed speargrass	r		n	24	04-Jul-2020
<i>Austrostipa blackii</i>	crested speargrass	r		n	2	07-Jan-2004
<i>Calocephalus citreus</i>	lemon beautyheads	r		n	1	05-Mar-1945
<i>Calocephalus lacteus</i>	milky beautyheads	r		n	1	05-Mar-1945
<i>Carex gunniana</i>	mountain sedge	r		n	1	01-Jan-1912
<i>Dianella amoena</i>	grassland flaxlily	r	EN	n	5	14-Feb-2008
<i>Haloragis aspera</i>	rough raspwort	v		n	1	05-Mar-1945
<i>Haloragis heterophylla</i>	variable raspwort	r		n	1	05-Mar-1945
<i>Stuckenia pectinata</i>	fennel pondweed	r		n	1	01-Dec-1891
<i>Triptilodiscus pygmaeus</i>	dwarf sunray	v		n	1	25-Oct-1972
<i>Vittadinia burbridgeae</i>	smooth new-holland-daisy	r		e	1	14-Sep-1988
<i>Vittadinia gracilis</i>	woolly new-holland-daisy	r		n	8	04-Nov-2020
<i>Vittadinia muelleri</i>	narrowleaf new-holland-daisy	r		n	4	08-Apr-2020
<i>Vittadinia muelleri</i> (broad sense)	narrow leaf new holland daisy	p		n	2	01-Jan-1993

Unverified Records

Species	Common Name	SS	NS	Bio	Observation Count
<i>Bolboschoenus medianus</i>	marsh clubsedge	r		n	25

For more information about threatened species, please contact Threatened Species Enquiries.

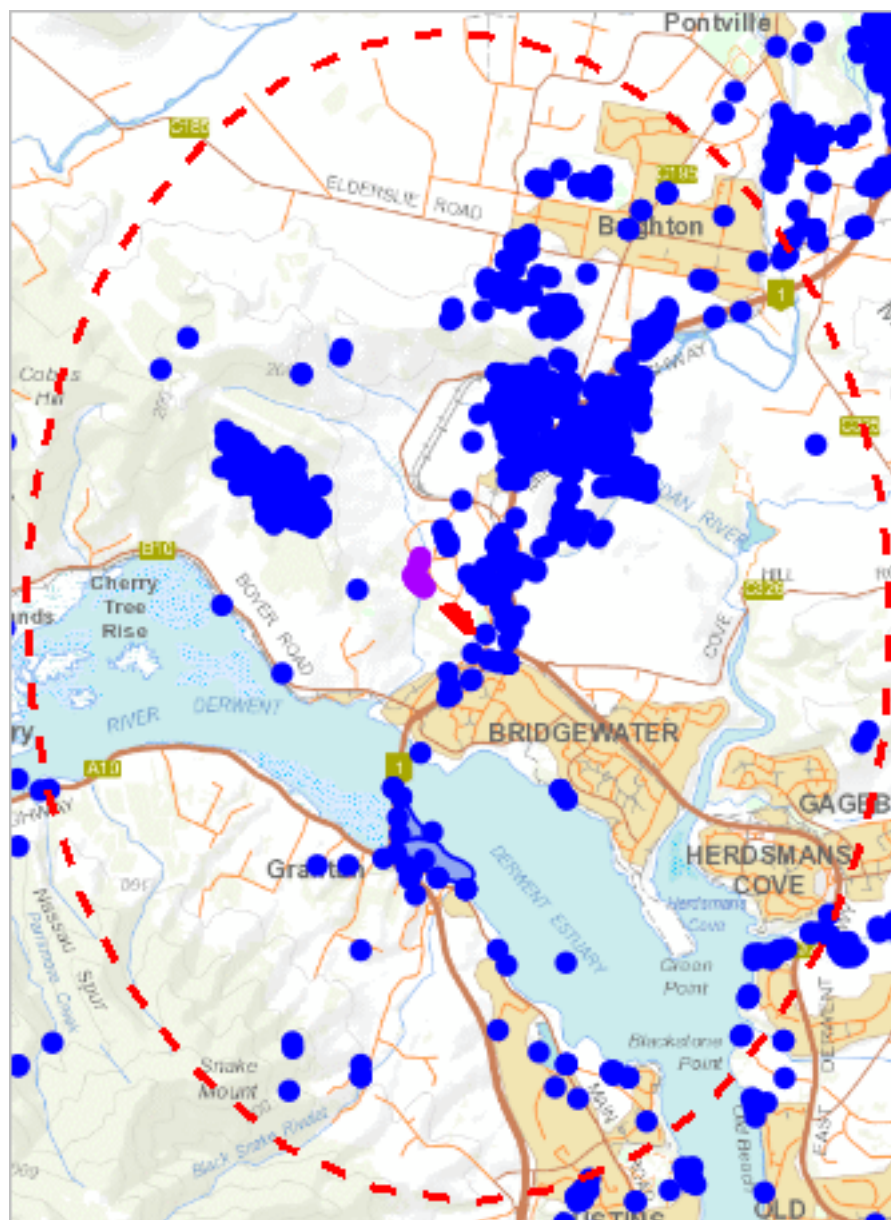
Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened flora within 5000 metres

522940, 5274398



515028, 5263772

Please note that some layers may not display at all requested map scales

Threatened flora within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Threatened flora within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
<i>Asperula scoparia</i> subsp. <i>scoparia</i>	prickly woodruff	r		n	3	27-Jul-2016
<i>Austrostipa bigeniculata</i>	doublejointed speargrass	r		n	132	11-Feb-2022
<i>Austrostipa blackii</i>	crested speargrass	r		n	2	07-Jan-2004
<i>Bolboschoenus caldwellii</i>	sea clubsedge	r		n	29	01-Jun-2017
<i>Brachyscome rigidula</i>	cutleaf daisy	v		n	1	01-Jan-1985
<i>Caladenia anthracina</i>	blacktip spider-orchid	e	CR	e	1	01-Nov-1842
<i>Caladenia caudata</i>	tailed spider-orchid	v	VU	e	4	01-Oct-1971
<i>Caladenia filamentosa</i>	daddy longlegs	r		n	1	22-Oct-1947
<i>Calocephalus citreus</i>	lemon beautyheads	r		n	46	10-Feb-2020
<i>Calocephalus lacteus</i>	milky beautyheads	r		n	8	01-Dec-1992
<i>Carex gunniana</i>	mountain sedge	r		n	1	01-Jan-1912
<i>Coronidium gunnianum</i>	swamp everlasting	e		n	1	01-Jan-1900
<i>Cryptandra amara</i>	pretty pearlflower	e		n	15	16-Sep-2020
<i>Damasonium minus</i>	starfruit	r		n	1	21-Apr-1917
<i>Dianella amoena</i>	grassland flaxlily	r	EN	n	302	14-Nov-2023
<i>Diuris palustris</i>	swamp doubletail	e		n	1	01-Oct-1977
<i>Eryngium ovium</i>	blue devil	v		n	1	06-Dec-2004
<i>Eucalyptus risdonii</i>	risdon peppermint	r		e	63	10-Apr-2015
<i>Glycine latrobeana</i>	clover glycine	v	VU	n	3	21-Nov-2008
<i>Goodenia paradoxa</i>	spur velleia	v		n	2	01-Dec-1876
<i>Gratiola pubescens</i>	hairy brooklime	r		n	1	01-Feb-1892
<i>Haloragis aspera</i>	rough raspwort	v		n	1	05-Mar-1945
<i>Haloragis heterophylla</i>	variable raspwort	r		n	36	23-Nov-2021
<i>Hibbertia basaltica</i>	basalt guineaflower	e	EN	e	118	12-Jan-2022
<i>Isoetopsis graminifolia</i>	grass cushion	v		n	128	13-Jan-2022
<i>Lachnagrostis robusta</i>	tall blowgrass	r		n	1	23-Dec-1943
<i>Lepidium hyssopifolium</i>	soft peppergrass	e	EN	n	11	01-Jun-2006
<i>Lepilaena patentifolia</i>	spreading watermat	r		n	1	27-Feb-1976
<i>Lythrum salicaria</i>	purple loosestrife	v		n	1	01-Mar-1894
<i>Pellaea caldirupium</i>	hotrock fern	r		n	3	12-Jan-2022
<i>Pterostylis ziegeleri</i>	grassland greenhood	v	VU	e	25	04-Nov-2016
<i>Pultenaea prostrata</i>	silky bushpea	v		n	20	20-Oct-2017
<i>Ranunculus pumilio</i> var. <i>pumilio</i>	ferny buttercup	r		n	1	27-Sep-1993
<i>Ruppia megacarpa</i>	largefruit seatassel	r		n	12	10-Mar-2021
<i>Schoenoplectus tabernaemontani</i>	river clubsedge	r		n	2	08-Apr-2020
<i>Scleranthus diander</i>	tufted knawel	v		n	1	09-Nov-2021
<i>Scleranthus fasciculatus</i>	spreading knawel	v		n	6	01-May-2024
<i>Senecio squarrosus</i>	leafy fireweed	r		n	18	02-Dec-2021
<i>Stackhousia subterranea</i>	grassland candles	e		n	7	02-Nov-2021
<i>Stuckenia pectinata</i>	fennel pondweed	r		n	2	01-Dec-1891
<i>Thesium australe</i>	southern toadflax	x	VU	n	1	01-Jan-1804
<i>Triptilodiscus pygmaeus</i>	dwarf sunray	v		n	59	09-Nov-2021
<i>Vallisneria australis</i>	river ribbons	r		n	2	01-Mar-1894
<i>Vittadinia burbridgeae</i>	smooth new-holland-daisy	r		e	3	01-Oct-2008
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	fuzzy new-holland-daisy	r		n	2	05-Jan-1991
<i>Vittadinia gracilis</i>	woolly new-holland-daisy	r		n	75	04-Nov-2020
<i>Vittadinia muelleri</i>	narrowleaf new-holland-daisy	r		n	300	01-Feb-2022
<i>Vittadinia muelleri</i> (broad sense)	narrow leaf new holland daisy	p		n	36	05-Jan-2005
<i>Xanthoparmelia amphixantha</i>		e		n	9	01-Oct-2008
<i>Xanthoparmelia molliuscula</i>		e		n	3	28-Mar-2004
<i>Xanthoparmelia vicariella</i>		r		e	4	02-Dec-2021

Unverified Records

Species	Common Name	SS	NS	Bio	Observation Count
<i>Bolboschoenus medianus</i>	marsh clubsedge	r		n	25

For more information about threatened species, please contact Threatened Species Enquiries.

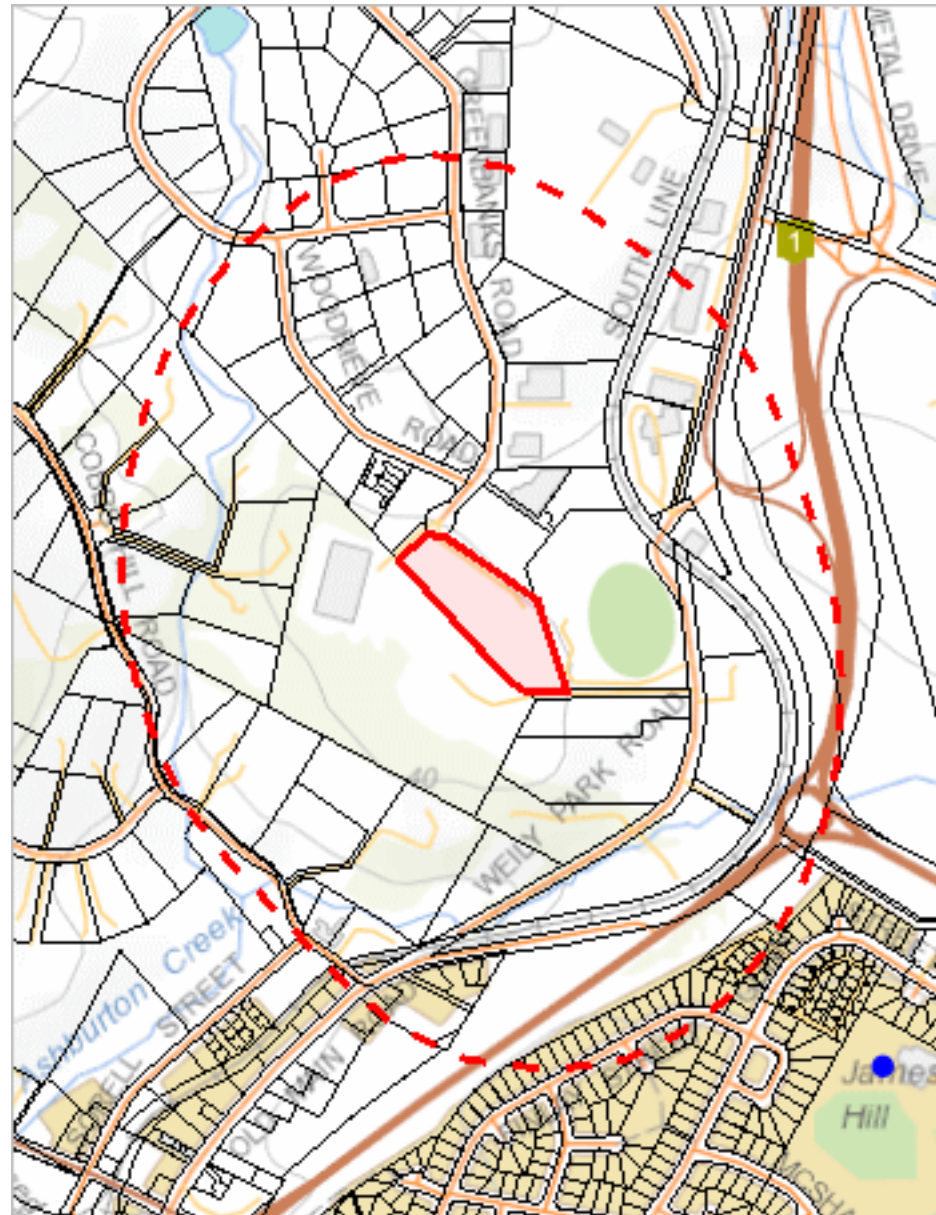
Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

Threatened fauna within 500 metres

519609, 5269893



518351, 5268280

Please note that some layers may not display at all requested map scales

Threatened fauna within 500 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Threatened fauna within 500 metres

Threatened fauna within 500 metres (based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
<i>Litoria raniformis</i>	green and gold frog	v	VU	n	1	0	1
<i>Lathamus discolor</i>	swift parrot	e	CR	mbe	1	0	1
<i>Prototroctes maraena</i>	australian grayling	v	VU	ae	1	0	0
<i>Antipodia chaostola</i>	chaostola skipper	e	EN	ae	1	0	0
<i>Pseudemoia pagenstecheri</i>	tussock skink	v		n	1	0	0
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle	v		n	2	0	0
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i>	masked owl (Tasmanian)	e	VU	e	1	0	1
<i>Dasyurus maculatus</i> subsp. <i>maculatus</i>	spotted-tailed quoll	r	VU	n	1	0	0
<i>Accipiter novaehollandiae</i>	grey goshawk	e		n	1	0	0
<i>Sarcophilus harrisii</i>	tasmanian devil	e	EN	e	1	0	0
<i>Pardalotus quadragintus</i>	forty-spotted pardalote	e	EN	e	1	0	0
<i>Perameles gunnii</i>	eastern barred bandicoot		VU	n	1	0	1
<i>Aquila audax</i> subsp. <i>fleayi</i>	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
<i>Dasyurus viverrinus</i>	eastern quoll		EN	n	0	0	1

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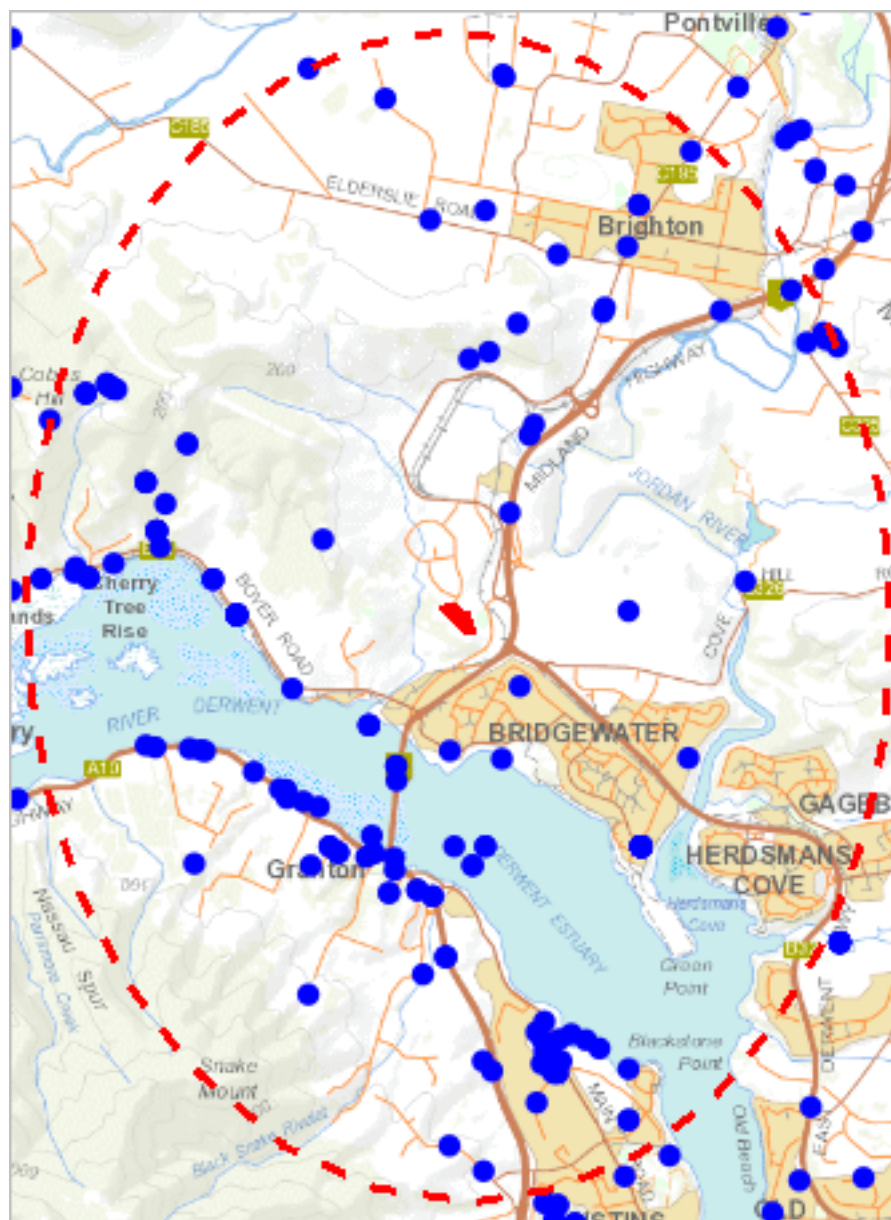
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Threatened fauna within 5000 metres

522940, 5274398



515028, 5263772

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Threatened fauna within 5000 metres

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Threatened fauna within 5000 metres

Verified Records

Species	Common Name	SS	NS	Bio	Observation Count	Last Recorded
Accipiter novaehollandiae	grey goshawk	e		n	15	23-Feb-2023
Alcedo azurea subsp. diemenensis	azure kingfisher or azure kingfisher (tasmanian)	e	EN	e	1	01-Jan-1900
Aquila audax	wedge-tailed eagle	pe	PEN	n	29	12-Jun-2023
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	10	25-Mar-2024
Botaurus poiciloptilus	australasian bittern		EN	n	9	17-Dec-2021
Dasyurus maculatus	spotted-tailed quoll	r	VU	n	3	12-Feb-2023
Dasyurus maculatus subsp. maculatus	spotted-tailed quoll	r	VU	n	1	16-Feb-2024
Dasyurus viverrinus	eastern quoll		EN	n	6	09-Dec-2019
Eagle sp.	Eagle	e	EN	n	2	07-May-2020
Gallinago hardwickii	latham's snipe		VU	n	147	07-Mar-2024
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	54	24-Jun-2023
Hirundapus caudacutus	white-throated needletail		VU	n	2	31-Dec-1980
Lathamus discolor	swift parrot	e	CR	mbe	19	03-Nov-2022
Litoria raniformis	green and gold frog	v	VU	n	1	14-Dec-1970
Neophema chrysostoma	blue-winged parrot		VU	n	7	09-Feb-2019
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	2	14-Oct-1920
Perameles gunnii	eastern barred bandicoot		VU	n	36	25-Mar-2024
Podiceps cristatus	great crested grebe	v		n	17	20-Dec-2021
Poliocephalus cristatus subsp. australis	great crested grebe	pv			1	07-Dec-1981
Prototroctes maraena	australian grayling	v	VU	ae	4	28-Oct-1987
Sarcophilus harrisii	tasmanian devil	e	EN	e	25	12-Mar-2024
Sterna striata	white-fronted tern	v		n	1	04-Mar-2013
Sternula albifrons subsp. sinensis	little tern	e		n	1	30-Apr-2022
Thalassarche cauta	shy albatross	v	EN	ae	1	23-Nov-1884
Theclinesthes serpentatus	chequered blue	pr		n	1	22-Feb-2023
Tyto novaehollandiae	masked owl	pe	PVU	n	8	13-Feb-2019

Unverified Records

No unverified records were found!

Threatened fauna within 5000 metres (based on Range Boundaries)

Species	Common Name	SS	NS	BO	Potential	Known	Core
Litoria raniformis	green and gold frog	v	VU	n	1	0	1
Lathamus discolor	swift parrot	e	CR	mbe	1	0	1
Prototroctes maraena	australian grayling	v	VU	ae	1	0	0
Discocharopa vigens	Ammonite Pinwheel Snail	e	CR		2	0	1
Antipodia chaostola	chaostola skipper	e	EN	ae	1	0	0
Pseudemoia pagenstecheri	tussock skink	v		n	1	0	1
Haliaeetus leucogaster	white-bellied sea-eagle	v		n	3	0	0
Tyto novaehollandiae subsp. castanops	masked owl (Tasmanian)	e	VU	e	1	0	1
Dasyurus maculatus subsp. maculatus	spotted-tailed quoll	r	VU	n	1	0	0
Accipiter novaehollandiae	grey goshawk	e		n	1	0	0
Sarcophilus harrisii	tasmanian devil	e	EN	e	1	0	0
Pardalotus quadragintus	forty-spotted pardalote	e	EN	e	1	0	0
Perameles gunnii	eastern barred bandicoot		VU	n	1	0	1
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	e	1	0	0
Dasyurus viverrinus	eastern quoll		EN	n	0	0	1

For more information about threatened species, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

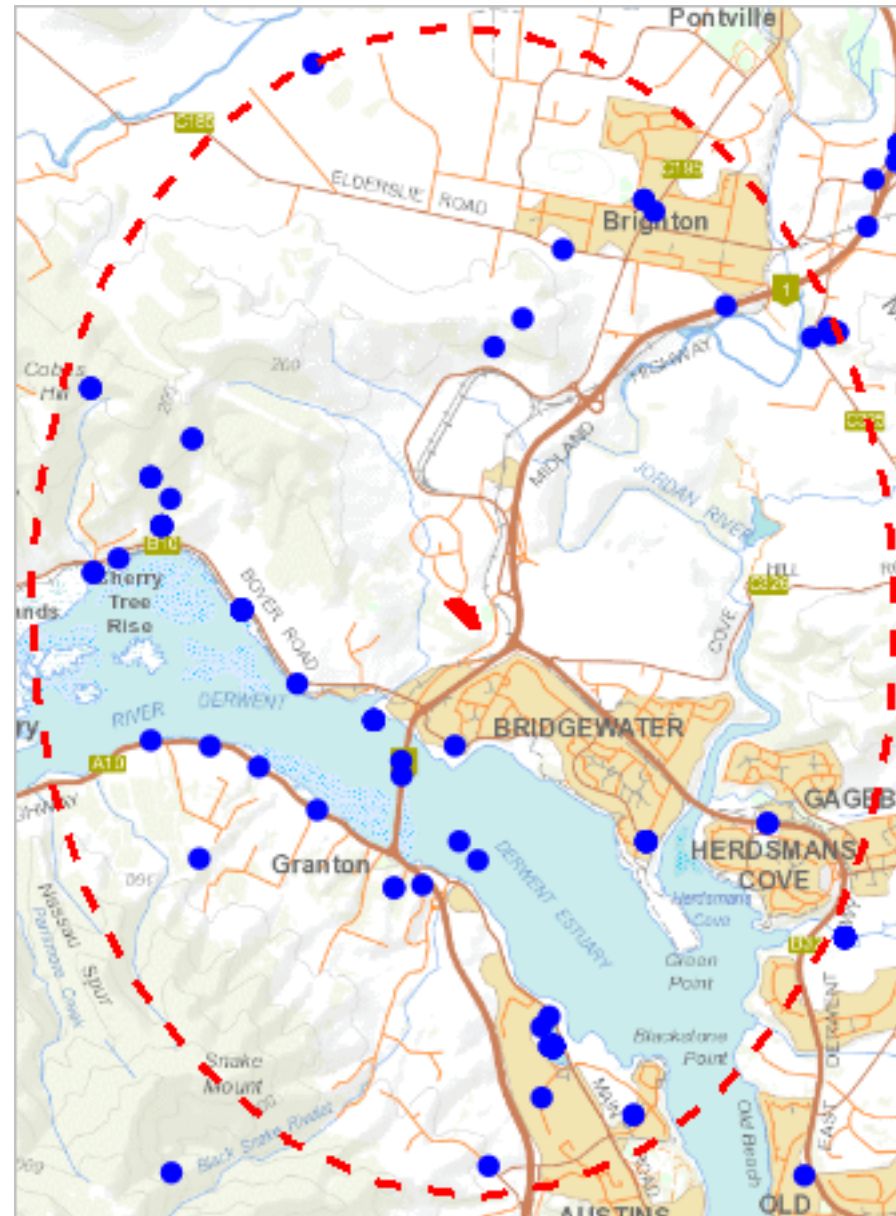
Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No Raptor nests or sightings found within 500 metres. ***

Raptor nests and sightings within 5000 metres

522940, 5274398









515028, 5263772

Please note that some layers may not display at all requested map scales

Raptor nests and sightings within 5000 metres

Legend: Verified and Unverified observations

- | | | |
|---|--|--|
|  Point Verified |  Point Unverified |  Line Verified |
|  Line Unverified |  Polygon Verified |  Polygon Unverified |

Legend: Cadastral Parcels



Raptor nests and sightings within 5000 metres

Verified Records

Nest Id/Location Foreign Id	Species	Common Name	Obs Type	Observation Count	Last Recorded
1778	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	21-Feb-2024
1778	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	4	07-May-2020
2927	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	21-Feb-2024
2927	Eagle sp.	Eagle	Nest	1	07-May-2020
2928	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	2	21-Feb-2024
2928	Eagle sp.	Eagle	Nest	1	07-May-2020
494	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Nest	1	21-Feb-2024
494	Haliaeetus leucogaster	white-bellied sea-eagle	Nest	2	07-May-2020
	Accipiter novaehollandiae	grey goshawk	Not Recorded	9	01-Apr-2017
	Accipiter novaehollandiae	grey goshawk	Sighting	6	23-Feb-2023
	Aquila audax	wedge-tailed eagle	Not Recorded	16	10-Mar-2018
	Aquila audax	wedge-tailed eagle	Sighting	13	12-Jun-2023
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Carcass	2	19-May-2018
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Radio Tracker Signal	1	25-Mar-2024
	Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	Sighting	2	24-Sep-1981
	Falco cenchroides	nankeen kestrel	Sighting	1	16-Mar-1904
	Falco longipennis	australian hobby	Sighting	9	18-Mar-2023
	Falco peregrinus	peregrine falcon	Not Recorded	16	25-Jun-2018
	Falco peregrinus	peregrine falcon	Sighting	16	22-Jan-2023
	Haliaeetus leucogaster	white-bellied sea-eagle	Not Recorded	14	07-Nov-2017
	Haliaeetus leucogaster	white-bellied sea-eagle	Sighting	34	24-Jun-2023
	Tyto novaehollandiae	masked owl	Carcass	1	13-Feb-2019
	Tyto novaehollandiae	masked owl	Not Recorded	1	06-Sep-1979
	Tyto novaehollandiae	masked owl	Sighting	6	13-Jun-2007

Unverified Records

No unverified records were found!

Raptor nests and sightings within 5000 metres (based on Range Boundaries)

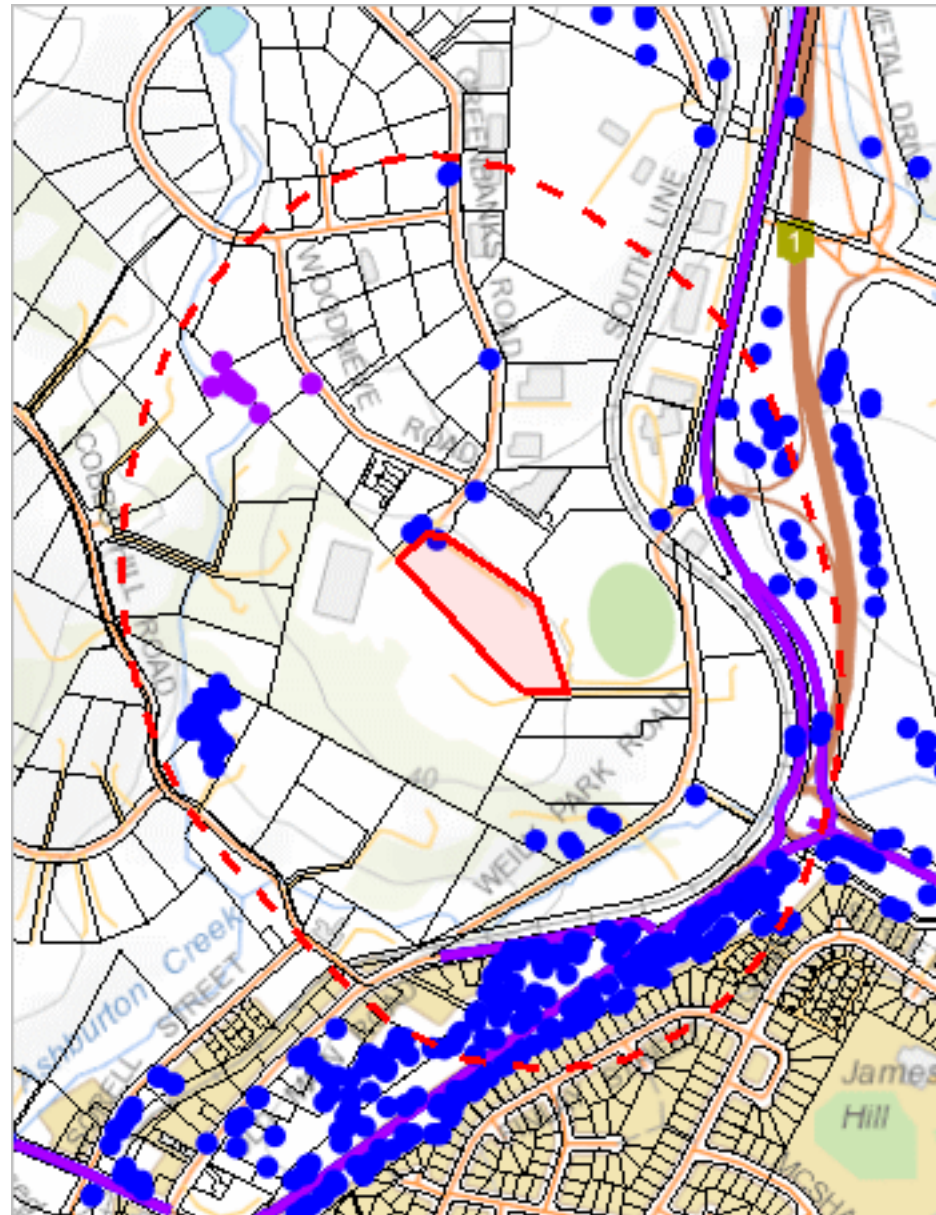
Species	Common Name	SS	NS	Potential	Known	Core
Aquila audax subsp. fleayi	tasmanian wedge-tailed eagle	e	EN	1	0	0
Accipiter novaehollandiae	grey goshawk	e		1	0	0
Haliaeetus leucogaster	white-bellied sea-eagle	v		3	0	0

For more information about raptor nests, please contact Threatened Species Enquiries.

Telephone: 1300 368 550

Email: ThreatenedSpecies.Enquiries@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000



518351, 5268280

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 500 m

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Tas Management Act Weeds within 500 m

Verified Records

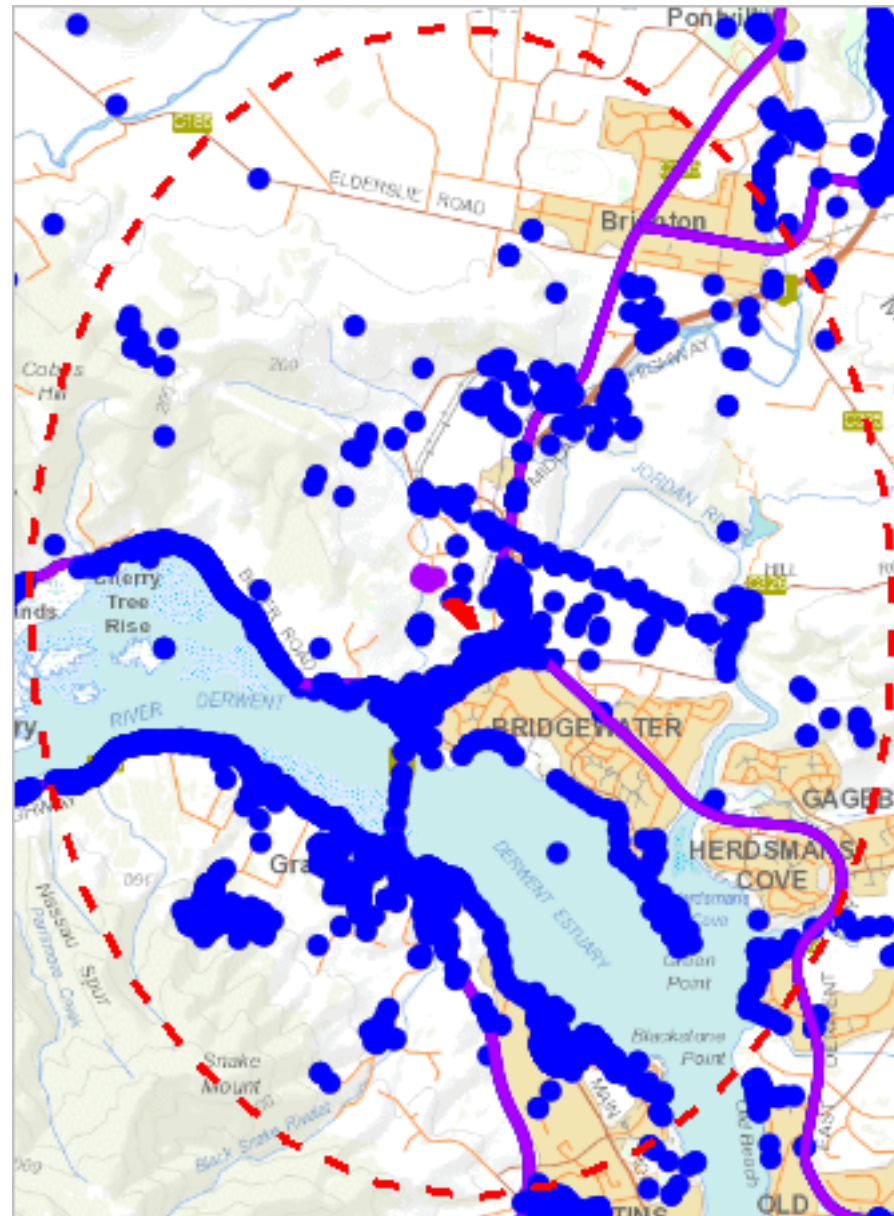
Species	Common Name	Observation Count	Last Recorded
Amelichloa caudata	espartillo	47	04-Oct-2023
Asphodelus fistulosus	onion weed	1	20-Sep-1942
Chrysanthemoides monilifera subsp. monilifera	boneseed	3	25-Mar-2024
Cirsium arvense var. arvense	creeping thistle	2	09-Feb-2023
Echium plantagineum	patersons curse	1	22-Sep-2021
Foeniculum vulgare	fennel	55	25-Mar-2024
Genista monspessulana	montpellier broom or canary broom	3	16-Aug-2014
Lepidium draba	hoary cress	37	25-Mar-2024
Lycium ferocissimum	african boxthorn	120	25-Mar-2024
Marrubium vulgare	white horehound	3	11-Oct-2013
Rubus fruticosus	blackberry	21	25-Mar-2024
Ulex europaeus	gorse	1	06-Jul-2022

Unverified Records

Species	Common Name	Observation Count
Foeniculum vulgare	fennel	7
Lycium ferocissimum	african boxthorn	2

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>



515028, 5263772

Please note that some layers may not display at all requested map scales

Tas Management Act Weeds within 5000 m

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Tas Management Act Weeds within 5000 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
<i>Amaranthus albus</i>	tumble pigweed	2	28-Jun-1998
<i>Amelichloa caudata</i>	espartillo	117	25-Mar-2024
<i>Amsinckia calycina</i>	hairy fiddleneck	2	04-Nov-2020
<i>Asparagus asparagoides</i>	bridal creeper	190	20-Jun-2024
<i>Asphodelus fistulosus</i>	onion weed	3	02-Sep-1943
<i>Carduus nutans</i>	nodding thistle	1	07-Jan-2004
<i>Carduus pycnocephalus</i>	slender thistle	33	25-Mar-2024
<i>Carduus tenuiflorus</i>	winged thistle	9	30-Nov-2021
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i>	boneseed	387	25-Mar-2024
<i>Cirsium arvense</i> var. <i>arvense</i>	creeping thistle	74	25-Mar-2024
<i>Cortaderia selloana</i>	silver pampasgrass	3	06-Apr-2018
<i>Cortaderia</i> sp.	pampas grass	10	02-Dec-2021
<i>Cylindropuntia</i> sp.	chollas	1	29-Sep-2017
<i>Cytisus multiflorus</i>	white spanish broom	2	18-May-2023
<i>Cytisus scoparius</i>	english broom	8	30-Nov-2021
<i>Echium plantagineum</i>	patersons curse	9	22-Sep-2021
<i>Elodea canadensis</i>	canadian pondweed	3	09-Jun-1994
<i>Eragrostis curvula</i>	african lovegrass	24	18-Mar-2022
<i>Erica lusitanica</i>	spanish heath	1	04-Aug-2021
<i>Foeniculum vulgare</i>	fennel	682	26-Mar-2024
<i>Genista monspessulana</i>	montpellier broom or canary broom	52	18-May-2023
<i>Hypericum perforatum</i>	perforated st johns-wort	18	02-Nov-2020
<i>Hypericum perforatum</i> subsp. <i>veronense</i>	perforated st johns-wort	7	25-Mar-2024
<i>Lepidium draba</i>	hoary cress	260	25-Mar-2024
<i>Lycium ferocissimum</i>	african boxthorn	827	01-May-2024
<i>Marrubium vulgare</i>	white horehound	32	13-Jan-2022
<i>Nassella neesiana</i>	chilean needlegrass	23	24-Mar-2023
<i>Nassella trichotoma</i>	serrated tussock	1190	15-Nov-2023
<i>Onopordum acanthium</i>	scotch thistle	1	01-Jan-1900
<i>Opuntia</i> sp.	prickly pear or cholla	1	17-Dec-2019
<i>Rubus anglocandicans</i>	blackberry	2	20-Aug-2019
<i>Rubus fruticosus</i>	blackberry	608	25-Mar-2024
<i>Salix x fragilis</i> nothovar. <i>fragilis</i>	crack willow	4	02-Oct-2020
<i>Ulex europaeus</i>	gorse	61	01-May-2024
<i>Urospermum dalechampii</i>	false dandelion	2	12-Nov-2013

Unverified Records

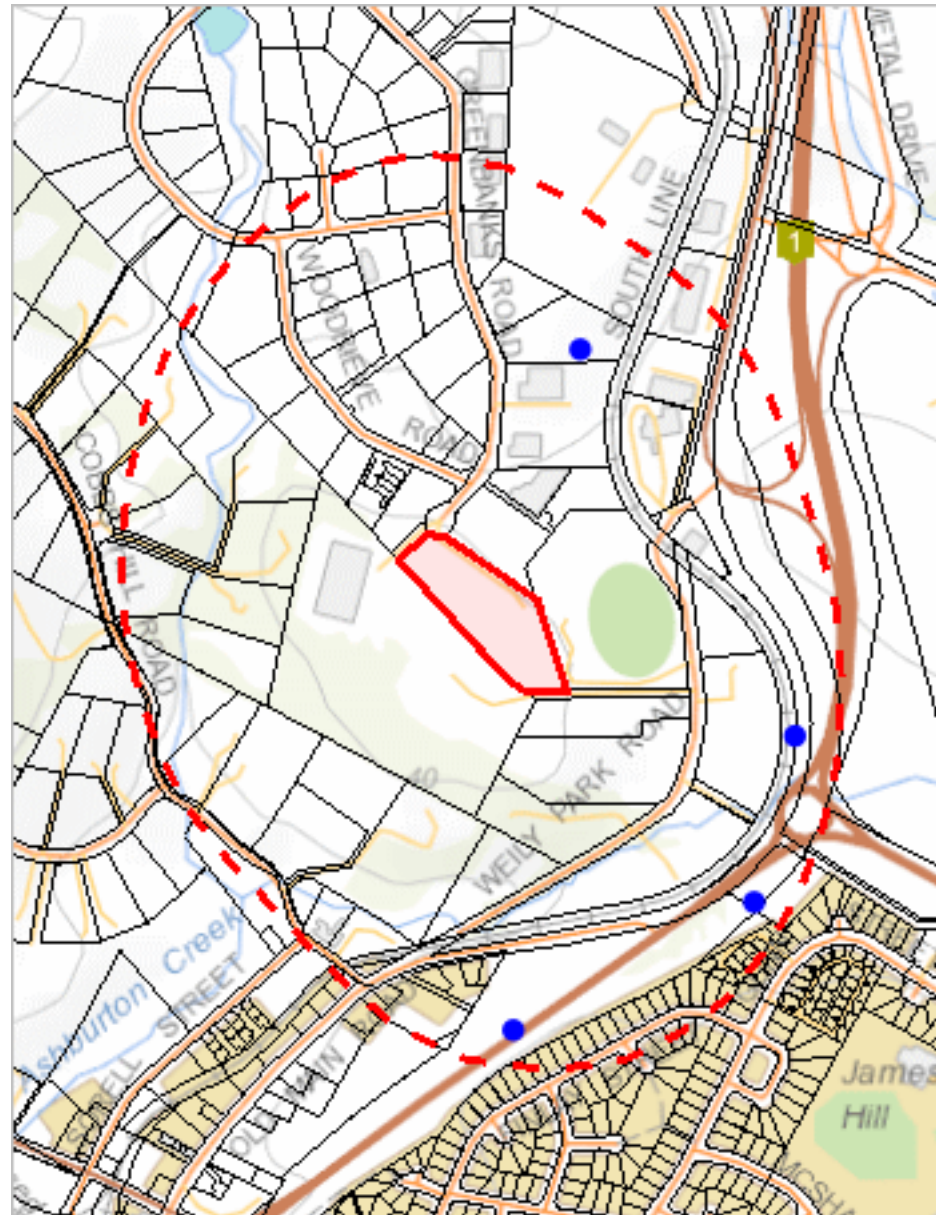
Species	Common Name	Observation Count
<i>Foeniculum vulgare</i>	fennel	7
<i>Lycium ferocissimum</i>	african boxthorn	2

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>

Priority Weeds within 500 m

519609, 5269893



518351, 5268280

Please note that some layers may not display at all requested map scales

Priority Weeds within 500 m

Legend: Verified and Unverified observations

● Point Verified

✎ Line Unverified

● Point Unverified

□ Polygon Verified

✎ Line Verified

□ Polygon Unverified

Legend: Cadastral Parcels



Priority Weeds within 500 m

Verified Records

Species	Common Name	Observation Count	Last Recorded
Acacia baileyana	cootamundra wattle	1	11-Oct-2013
Reseda luteola	weld	2	25-Mar-2024
Retama raetam	weeping white broom	1	29-Oct-2013

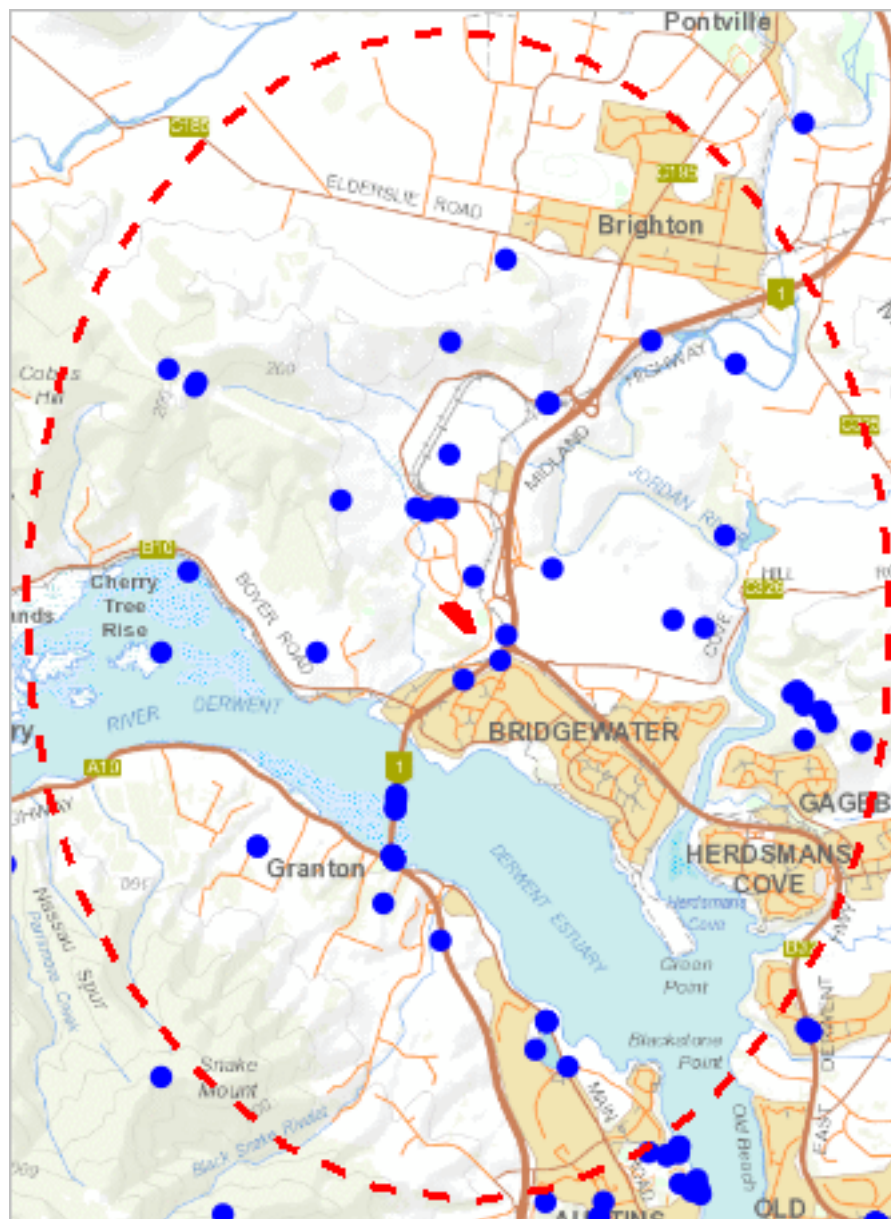
Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>

Priority Weeds within 5000 m

522940, 5274398



515028, 5263772

Please note that some layers may not display at all requested map scales

Priority Weeds within 5000 m

Legend: Verified and Unverified observations

- Point Verified

●

Point Unverified

▬

Line Verified

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Line Unverified

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Polygon Verified

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Polygon Unverified

Legend: Cadastral Parcels



Priority Weeds within 5000 m

Verified Records

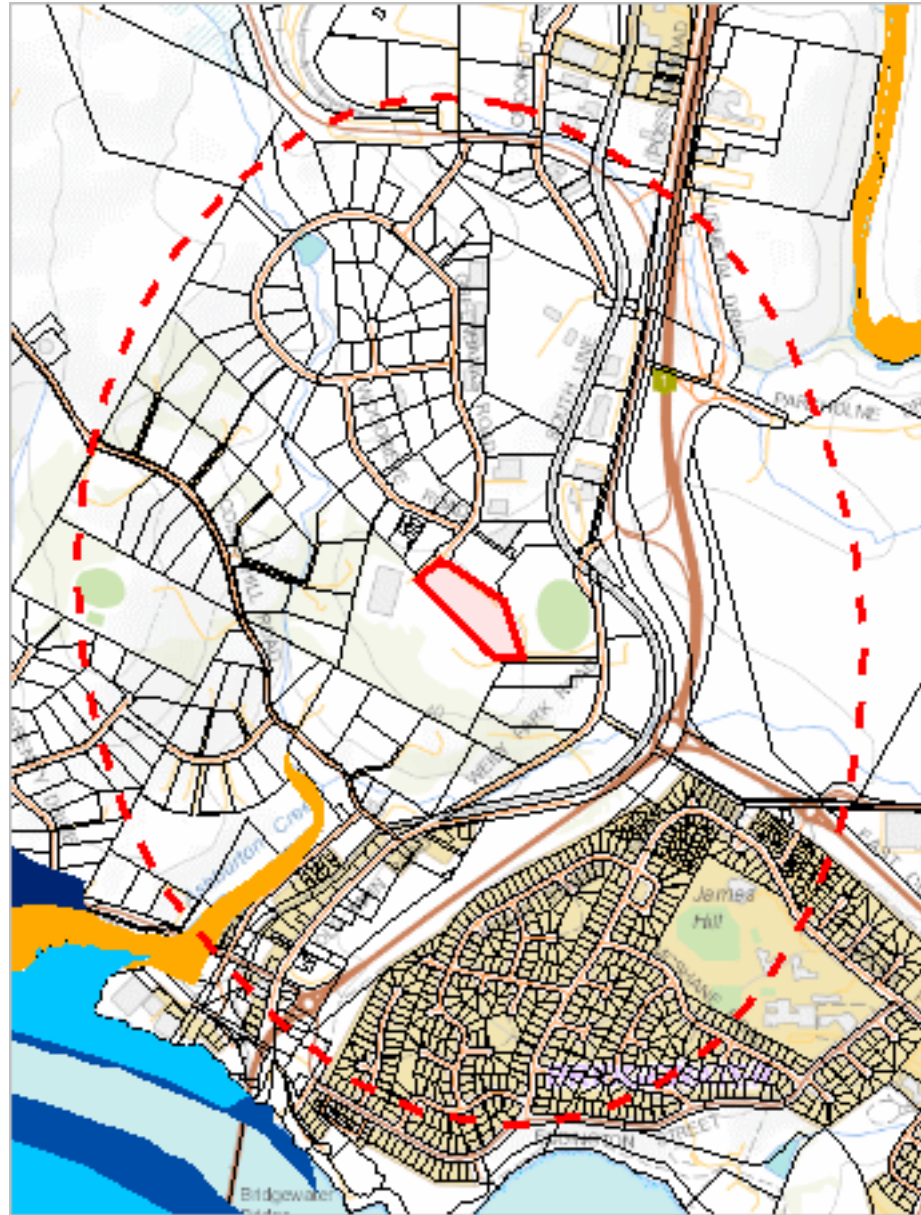
Species	Common Name	Observation Count	Last Recorded
Acacia baileyana	cootamundra wattle	3	11-Oct-2013
Achillea millefolium	yarrow	3	30-Nov-2021
Billardiera heterophylla	bluebell creeper	2	22-May-2018
Dipsacus fullonum	wild teasel	5	30-Nov-2021
Echium candicans	pride-of-madeira	9	25-Mar-2024
Polygala myrtifolia	myrtleleaf milkwort	6	23-Apr-2024
Reseda luteola	weld	27	25-Mar-2024
Retama raetam	weeping white broom	1	29-Oct-2013
Rumex obtusifolius	broadleaf dock	1	14-May-1997
Salix x pendulina var. pendulina	weeping willow	1	01-Jan-1993
Sporobolus anglicus	common cordgrass	3	15-Feb-1976
Verbascum thapsus	great mullein	4	25-Mar-2024
Watsonia meriana var. bulbillifera	bulbil watsonia	4	02-Feb-2011

Unverified Records

For more information about introduced weed species, please visit the following URL for contact details in your area:

<https://www.nre.tas.gov.au/invasive-species/weeds>

*** No Geoconservation sites found within 1000 metres. ***






517982, 5267779




Please note that some layers may not display at all requested map scales

Acid Sulfate Soils within 1000 metres


Legend: Coastal Acid Sulfate Soils (0 - 20m AHD)

 High  Low  Extremely Low

Legend: Inland Acid Sulfate Soils (>20m AHD)

 High  Low  Extremely Low

Legend: Marine Subaqueous/Intertidal Acid Sulfate Soil

 High (Intertidal)  High (Subtidal)

Legend: Cadastral Parcels



Acid Sulfate Soils within 1000 metres

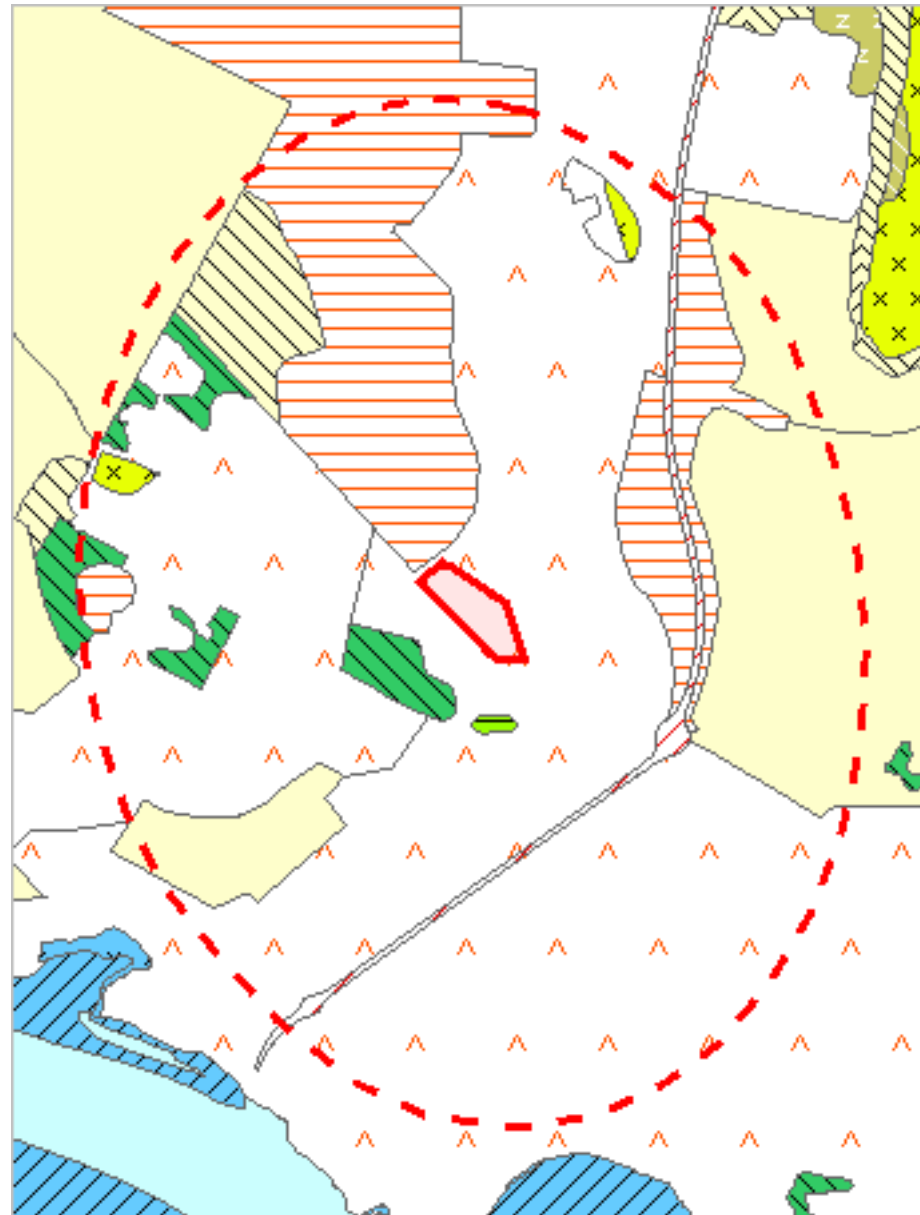
Dataset Name	Acid Sulfate Soil Probability	Acid Sulfate Soil Atlas	Description
Coastal Acid Sulfate Soils	Low	Bg(p3)	Low probability of occurrence (6-70% chance of occurrence in mapping unit). Floodplains >4m AHD, ASS generally below 3m from the surface.generally forests. Includes plains and levees. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.

For more information about Acid Sulfate Soils, please contact Land Management Enquiries.

Telephone: (03) 6777 2227

Email: LandManagement.Enquiries@nre.tas.gov.au

Address: 171 Westbury Road, Prospect, Tasmania, Australia, 7250







































517982, 5267779

Please note that some layers may not display at all requested map scales






































Legend: TASVEG 4.0

	{AAP} Alkaline pans
	{AHF} Freshwater aquatic herbland
	{AHL} Lacustrine herbland
	{AHS} Saline aquatic herbland
	{ARS} Saline sedgeland / rushland
	{ASF} Fresh water aquatic sedgeland and rushland
	{ASP} Sphagnum peatland
	{ASS} Succulent saline herbland
	{AUS} Saltmarsh (undifferentiated)
	{AWU} Wetland (undifferentiated)
	{DAC} Eucalyptus amygdalina coastal forest and woodland
	{DAD} Eucalyptus amygdalina forest and woodland on dolerite
	{DAM} Eucalyptus amygdalina forest on mudstone
	{DAS} Eucalyptus amygdalina forest and woodland on sandstone
	{DAZ} Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits
	{DBA} Eucalyptus barberi forest and woodland
	{DCO} Eucalyptus coccifera forest and woodland
	{DCR} Eucalyptus cordata forest
	{DDE} Eucalyptus delegatensis dry forest and woodland
	{DDP} Eucalyptus dalrympleana - Eucalyptus pauciflora forest and woodland
	{DGL} Eucalyptus globulus dry forest and woodland
	{DGW} Eucalyptus gunnii woodland
	{DKW} King Island Eucalypt woodland
	{DMO} Eucalyptus morrisbyi forest and woodland
	{DMW} Midlands woodland complex
	{DNF} Eucalyptus nitida Furneaux forest
	{DNI} Eucalyptus nitida dry forest and woodland
	{DOB} Eucalyptus obliqua dry forest
	{DOV} Eucalyptus ovata forest and woodland
	{DOW} Eucalyptus ovata heathy woodland
	{DPD} Eucalyptus pauciflora forest and woodland on dolerite
	{DPE} Eucalyptus perriniana forest and woodland
	{DPO} Eucalyptus pauciflora forest and woodland not on dolerite
	{DPU} Eucalyptus pulchella forest and woodland
	{DRI} Eucalyptus risdonii forest and woodland
	{DRO} Eucalyptus rodwayi forest and woodland
	{DSC} Eucalyptus amygdalina - Eucalyptus obliqua damp sclerophyll forest
	{DSG} Eucalyptus sieberi forest and woodland on granite
	{DSO} Eucalyptus sieberi forest and woodland not on granite
	{DTD} Eucalyptus tenuiramis forest and woodland on dolerite
	{DTG} Eucalyptus tenuiramis forest and woodland on granite
	{DTO} Eucalyptus tenuiramis forest and woodland on sediments
	{DVC} Eucalyptus viminalis - Eucalyptus globulus coastal forest and woodland
	{DVF} Eucalyptus viminalis Furneaux forest and woodland
	{DVG} Eucalyptus viminalis grassy forest and woodland
	{FAC} Improved pasture with native tree canopy
	{FAG} Agricultural land
	{FMG} Marram grassland
	{FPE} Permanent easements
	{FPF} Pteridium esculentum fernland
	{FPH} Plantations for silviculture - hardwood
	{FPS} Plantations for silviculture - softwood
	{FPU} Unverified plantations for silviculture
	{FRG} Regenerating cleared land
	{FSM} Spartina marshland
	{FUM} Extra-urban miscellaneous
	{FUR} Urban areas
	{FWU} Weed infestation
	{GCL} Lowland grassland complex

TASVEG 4.0 Communities within 1000 metres

	{GHC} Coastal grass and herbfield
	{GPH} Highland Poa grassland
	{GPL} Lowland Poa labillardierei grassland
	{GRP} Rockplate grassland
	{GSL} Lowland grassy sedgeland
	{GTL} Lowland Themeda triandra grassland
	{HCH} Alpine coniferous heathland
	{HCM} Cushion moorland
	{HHE} Eastern alpine heathland
	{HHW} Western alpine heathland
	{HSE} Eastern alpine sedgeland
	{HSW} Western alpine sedgeland/herbland
	{HUE} Eastern alpine vegetation (undifferentiated)
	{MBE} Eastern buttongrass moorland
	{MBP} Pure buttongrass moorland
	{MBR} Sparse buttongrass moorland on slopes
	{MBS} Buttongrass moorland with emergent shrubs
	{MBU} Buttongrass moorland (undifferentiated)
	{MBW} Western buttongrass moorland
	{MDS} Subalpine Diplarrena latifolia rushland
	{MGH} Highland grassy sedgeland
	{MRR} Restionaceae rushland
	{MSW} Western lowland sedgeland
	{NAD} Acacia dealbata forest
	{NAF} Acacia melanoxylon swamp forest
	{NAL} Allocasuarina littoralis forest
	{NAR} Acacia melanoxylon forest on rises
	{NAV} Allocasuarina verticillata forest
	{NBA} Bursaria - Acacia woodland
	{NBS} Banksia serrata woodland
	{NCR} Callitris rhomboidea forest
	{NLA} Leptospermum scoparium - Acacia mucronata forest
	{NLE} Leptospermum forest
	{NLM} Leptospermum lanigerum - Melaleuca squarrosa swamp forest
	{NLN} Subalpine Leptospermum nitidum woodland
	{NME} Melaleuca ericifolia swamp forest
	{OAQ} Water, sea
	{ORO} Lichen lithosere
	{OSM} Sand, mud
	{RCO} Coastal rainforest
	{RFE} Rainforest fernland
	{RFS} Nothofagus gunnii rainforest scrub
	{RHP} Lagarostrobos franklinii rainforest and scrub
	{RKF} Athrotaxis selaginoides - Nothofagus gunnii short rainforest
	{RKP} Athrotaxis selaginoides rainforest
	{RKS} Athrotaxis selaginoides subalpine scrub
	{RKX} Highland rainforest scrub with dead Athrotaxis selaginoides
	{RML} Nothofagus - Leptospermum short rainforest
	{RMS} Nothofagus - Phyllocladus short rainforest
	{RMT} Nothofagus - Atherosperma rainforest
	{RMU} Nothofagus rainforest (undifferentiated)
	{RPF} Athrotaxis cupressoides - Nothofagus gunnii short rainforest
	{RPP} Athrotaxis cupressoides rainforest
	{RPW} Athrotaxis cupressoides open woodland
	{RSH} Highland low rainforest and scrub
	{SAL} Acacia longifolia coastal scrub
	{SBM} Banksia marginata wet scrub
	{SBR} Broad-leaf scrub
	{SCA} Coastal scrub on alkaline sands
	{SCH} Coastal heathland
	{SCL} Heathland on calcareous substrates

TASVEG 4.0 Communities within 1000 metres

	{SED} Eastern scrub on dolerite
	{SHS} Subalpine heathland
	{SHW} Wet heathland
	{SKA} Kunzea ambigua regrowth scrub
	{SLG} Leptospermum glaucescens heathland and scrub
	{SLL} Leptospermum lanigerum scrub
	{SLS} Leptospermum scoparium heathland and scrub
	{SMM} Melaleuca squamea heathland
	{SMP} Melaleuca pustulata scrub
	{SMR} Melaleuca squarrosa scrub
	{SRE} Eastern riparian scrub
	{SRF} Leptospermum with rainforest scrub
	{SRH} Rookery halophytic herbland
	{SSC} Coastal scrub
	{SSK} Scrub complex on King Island
	{SSW} Western subalpine scrub
	{SSZ} Spray zone coastal complex
	{SWR} Western regrowth complex
	{SWW} Western wet scrub
	{WBR} Eucalyptus brookeriana wet forest
	{WDA} Eucalyptus dalrympleana forest
	{WDB} Eucalyptus delegatensis forest with broad-leaf shrubs
	{WDL} Eucalyptus delegatensis forest over Leptospermum
	{WDR} Eucalyptus delegatensis forest over rainforest
	{WDU} Eucalyptus delegatensis wet forest (undifferentiated)
	{WGL} Eucalyptus globulus King Island forest
	{WGL} Eucalyptus globulus wet forest
	{WNL} Eucalyptus nitida forest over Leptospermum
	{WNR} Eucalyptus nitida forest over rainforest
	{WNU} Eucalyptus nitida wet forest (undifferentiated)
	{WOB} Eucalyptus obliqua forest with broad-leaf shrubs
	{WOL} Eucalyptus obliqua forest over Leptospermum
	{WOR} Eucalyptus obliqua forest over rainforest
	{WOU} Eucalyptus obliqua wet forest (undifferentiated)
	{WRE} Eucalyptus regnans forest
	{WSU} Eucalyptus subcrenulata forest and woodland
	{WVI} Eucalyptus viminalis wet forest

Legend: Cadastral Parcels



TASVEG 4.0 Communities within 1000 metres

Code	Community	Canopy Tree
DAD	(DAD) Eucalyptus amygdalina forest and woodland on dolerite	
DVG	(DVG) Eucalyptus viminalis grassy forest and woodland	
FAG	(FAG) Agricultural land	EV
FAG	(FAG) Agricultural land	
FPE	(FPE) Permanent easements	
FRG	(FRG) Regenerating cleared land	EV
FUM	(FUM) Extra-urban miscellaneous	EV
FUM	(FUM) Extra-urban miscellaneous	
FUR	(FUR) Urban areas	
GTL	(GTL) Lowland Themeda triandra grassland	

For more information contact: Coordinator, Tasmanian Vegetation Monitoring and Mapping Program.

Telephone: (03) 6165 4320

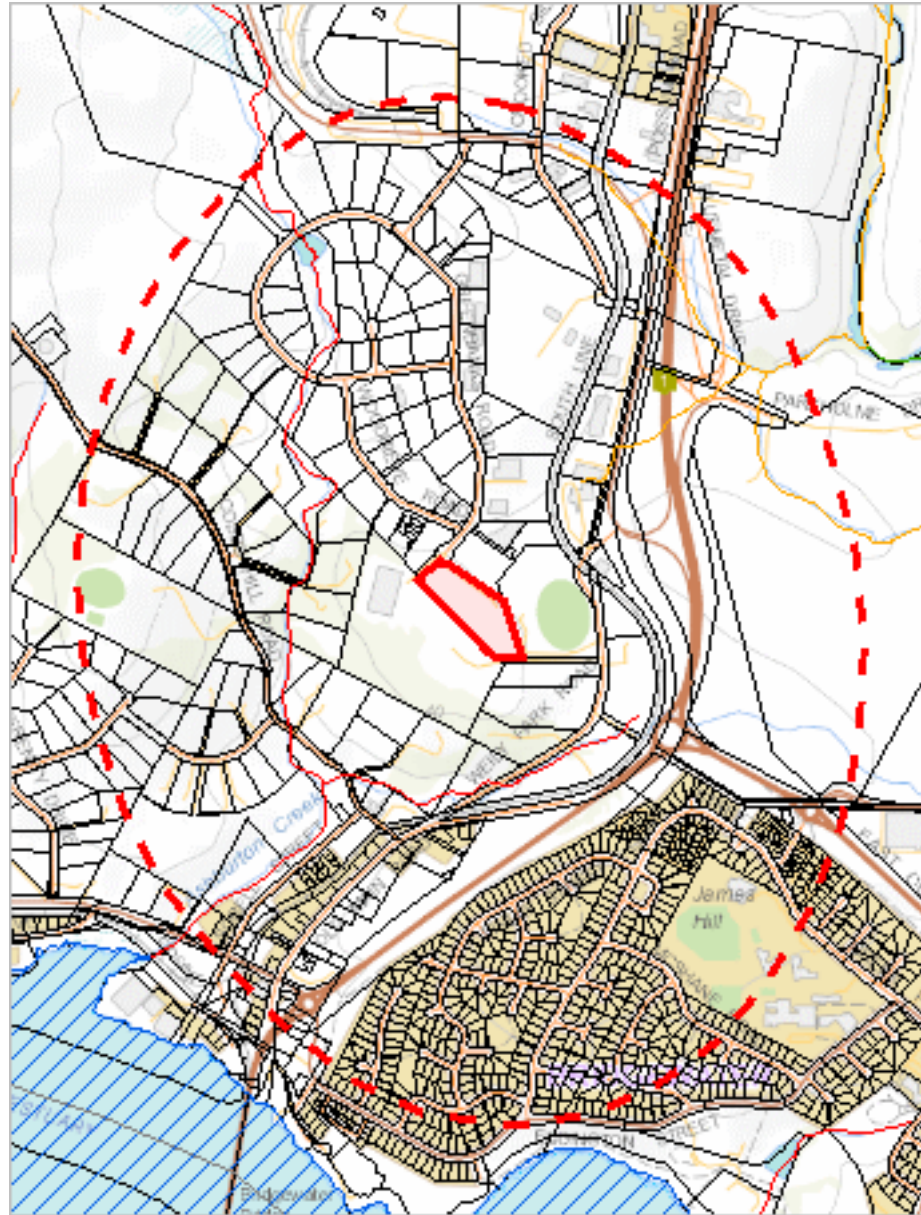
Email: TVMMPsupport@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

*** No threatened Communities (TNVC 2020) found within 1000 metres ***

*** No Fire History (All) found within 1000 metres ***

*** No Fire History (Last Burnt) found within 1000 metres ***



517982, 5267779

Please note that some layers may not display at all requested map scales

Freshwater Ecosystem Values within 1000 metres

Legend: CFEV Rivers - Integrated Conservation Value

— Very High — High — Medium
— Low — Artificial drainage

Legend: CFEV Waterbodies - Integrated Conservation Value

■ Very High ■ High ■ Medium ■ Low

Legend: CFEV Wetlands - Integrated Conservation Value

■ Very High ■ High ■ Medium ■ Low

Legend: CFEV Saltmarshes - Integrated Conservation Value

■ Very High ■ High ■ Medium

Legend: CFEV Estuaries - Integrated Conservation Value

■ Very High ■ High ■ Medium

Legend: CFEV Karst - Integrated Conservation Value

■ Very High ■ High ■ Medium

Legend: CFEV Groundwater Dependent Ecosystems (GDEs)

■

Legend: Cadastral Parcels



Freshwater Ecosystem Values within 1000 metres

Rivers

Id	Name	Naturalness	Integrated Conservation Value	Conservation Management Priority	Number of Special Values
236207.0	Ashburton Creek	Low	L	L	1.0
236208.0		Low	L	L	1.0
236209.0		Low	M	M	1.0
236211.0		Low	M	M	1.0
236212.0	Ashburton Creek	Low	L	L	1.0
236213.0		Low	M	M	1.0
236214.0		Low	M	M	1.0
236215.0		Low	M	M	1.0

Waterbodies

No Waterbody features found within 1000 metres

Wetlands

No Wetland features found within 1000 metres

Saltmarshes

No Saltmarsh features found within 1000 metres

Estuaries

No Estuary features found within 1000 metres

Karst

No Karst features found within 1000 metres

Groundwater Dependent Ecosystems

No Groundwater Dependent Ecosystem features found within 1000 metres

For more information about Freshwater Ecosystem Values, please contact the Conservation of Freshwater Ecosystem Values Program.

Telephone: (03) 6165 53271

Email: cfev@nre.tas.gov.au

Address: GPO Box 44, Hobart, Tasmania, Australia, 7000

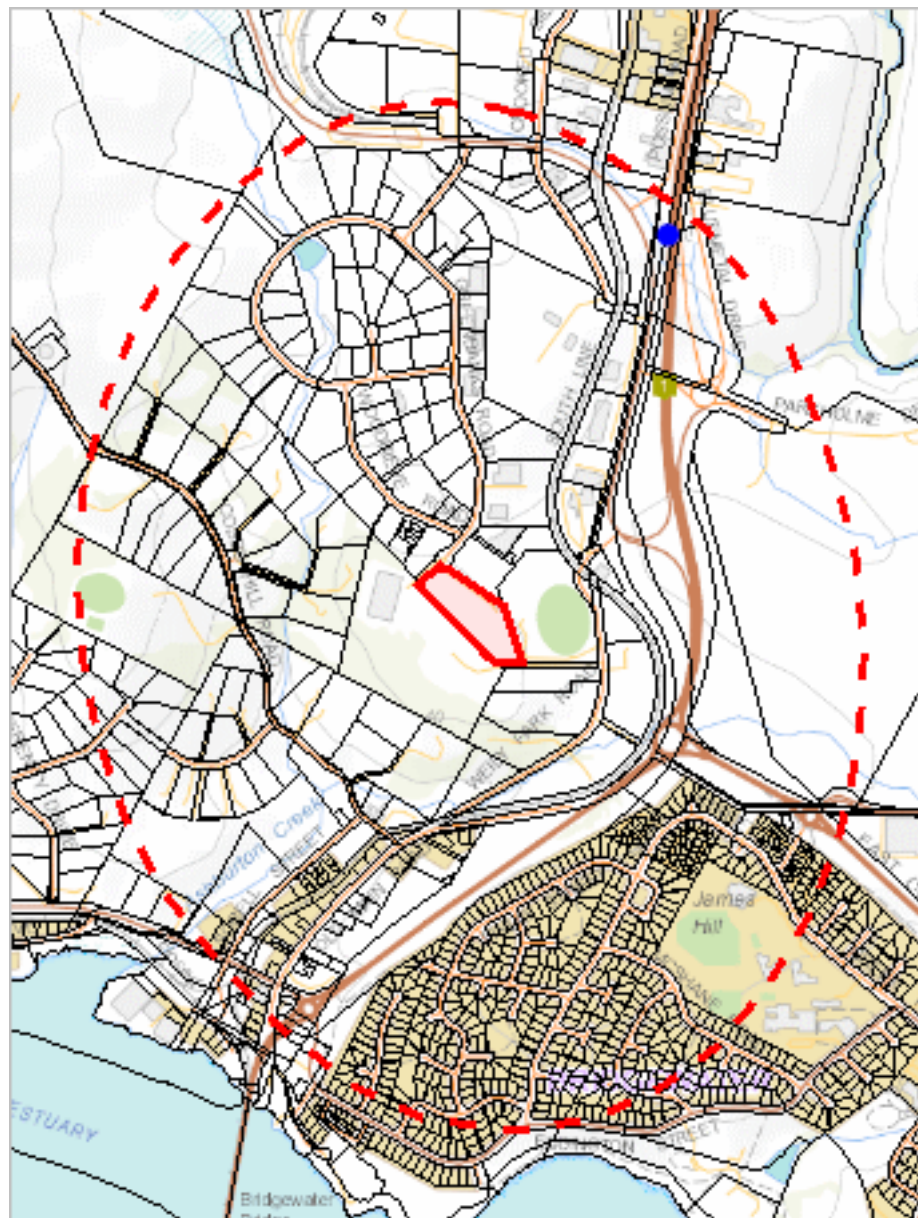
Website: <https://www.nre.tas.gov.au/cfev>

For more detailed information on freshwater ecosystems, see the Conservation of Freshwater Ecosystem Values (CFEV) database: <https://wrt.tas.gov.au/cfev>

*** No reserves found within 1000 metres ***

Known biosecurity risks within 1000 meters

519979, 5270393



517982, 5267779

Please note that some layers may not display at all requested map scales

Known biosecurity risks within 1000 meters

Legend: Biosecurity Risk Species

- Point Verified
- Point Unverified
- Line Unverified
- Polygon Verified
- Line Verified
- Polygon Unverified

Legend: Hygiene infrastructure

- Location Point Verified
- Location Point Unverified
- Location Line Verified
- Location Line Unverified
- Location Polygon Verified
- Location Polygon Unverified

Legend: Cadastral Parcels



Known biosecurity risks within 1000 meters

Verified Species of biosecurity risk

Species Name	Common Name	Prescription	Observation Count	Last Recorded
Rattus rattus	black rat		1	23-Oct-1991

Unverified Species of biosecurity risk

No unverified species of biosecurity risk found within 1000 metres

Generic Biosecurity Guidelines

The level and type of hygiene protocols required will vary depending on the tenure, activity and land use of the area. In all cases adhere to the land manager's biosecurity (hygiene) protocols. As a minimum always Check / Clean / Dry (Disinfect) clothing and equipment before trips and between sites within a trip as needed

<https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>

On Reserved land, the more remote, infrequently visited and undisturbed areas require tighter biosecurity measures.

In addition, where susceptible species and communities are known to occur, tighter biosecurity measures are required.

Apply controls relevant to the area / activity:

- Don't access sites infested with pathogen or weed species unless absolutely necessary. If it is necessary to visit, adopt high level hygiene protocols.
- Consider not accessing non-infested sites containing known susceptible species / communities. If it is necessary to visit, adopt high level hygiene protocols.
- Don't undertake activities that might spread pest / pathogen / weed species such as deliberately moving soil or water between areas.
- Modify / restrict activities to reduce the chance of spreading pest / pathogen / weed species e.g. avoid periods when weeds are seeding, avoid clothing/equipment that excessively collects soil and plant material e.g. Velcro, excessive tread on boots.
- Plan routes to visit clean (uninfested) sites prior to dirty (infested) sites. Do not travel through infested areas when moving between sites.
- Minimise the movement of soil, water, plant material and hitchhiking wildlife between areas by using the Check / Clean / Dry (Disinfect when drying is not possible) procedure for all clothing, footwear, equipment, hand tools and vehicles <https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene>
- Neoprene and netting can take 48 hours to dry, use non-porous gear wherever possible.
- Use walking track boot wash stations where available.
- Keep a hygiene kit in the vehicle that includes a scrubbing brush, boot pick, and disinfectant <https://www.nre.tas.gov.au/invasive-species/weeds/weed-hygiene/keeping-it-clean-a-tasmanian-field-hygiene-manual>
- Dispose of all freshwater away from natural water bodies e.g. do not empty water into streams or ponds.
- Dispose of used disinfectant ideally in town through a treatment or septic system. Always keep disinfectant well away from natural water systems.
- Securely contain any high risk pest / pathogen / weed species that must be collected and moved e.g. biological samples.

Hygiene Infrastructure

No known hygiene infrastructure found within 1000 metres

Environmental Management Plan – Schematic Design

73 Greenbanks Road – Utilities infrastructure

**Pitt & Sherry
(Operations) Pty Ltd**
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

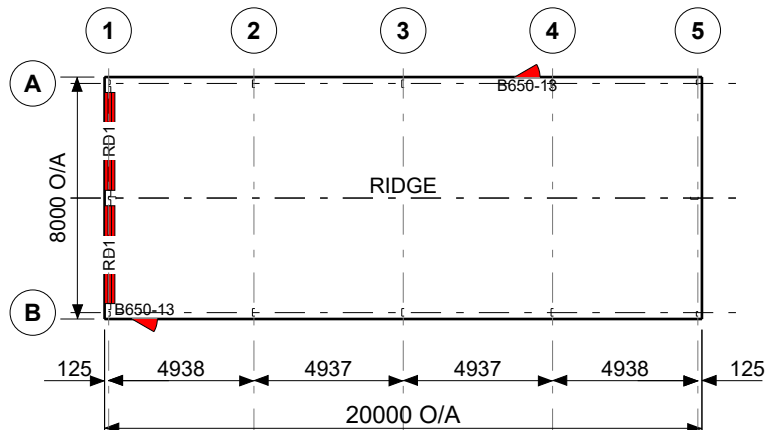
Located nationally —

Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport

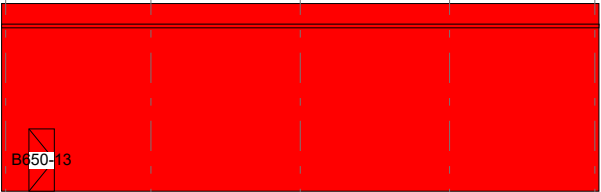


Site shed

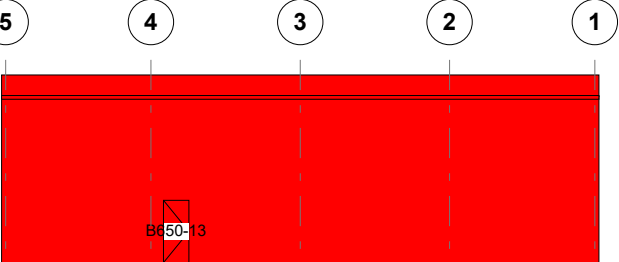
Appendix I



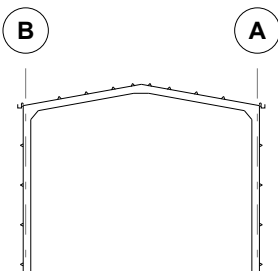
GROUND FLOOR PLAN



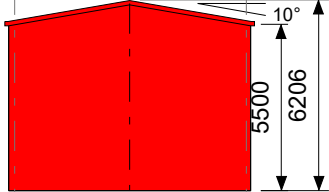
ELEVATION GRID B



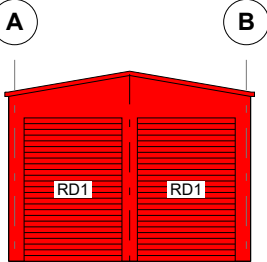
ELEVATION GRID A



SECTION GRID 2, 3, 4



ELEVATION GRID 5



ELEVATION GRID 1

RANBUILD

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Lysaght Building
Solutions Pty Ltd
trading as RANBUILD

CLADDING

ITEM	PROFILE (min)	FINISH	COLOUR
ROOF	CUSTOM ORB 0.42 BMT	CB	AA
WALLS	TRIMDEK 0.42 BMT	CB	AA
CORNERS	-	CB	AA
BARGE	-	CB	AA
GUTTER	SQUARELINE	CB	AA

0.35bmt=0.40tct; 0.42bmt=0.47tct; 0.48bmt=0.53tct

ACCESSORY SCHEDULE & LEGEND

QTY	MARK	DESCRIPTION
2	RD1	Taurean, Light Industrial Commando Series B 4665 high x 3235 wide Clr. Open. C/B
2	B650-13	Larnec Door & Frame Kit, 650/37, Std. 2040 x 820 C/Bond

ARCHITECTURAL DRAWING ONLY, NOT FOR CONSTRUCTION USE

CLIENT
Nicholas Ashlin

SITE
TBA
BRIDGEWATER TAS 7030

BUILDING
BIG G
8000 SPAN x 5500 EAVE x 20000 LONG

TITLE
FLOOR PLAN & ELEVATION

SCALE
A4 SHEET 1:250

DRAWING NUMBER
BRWT3-2840

REV
A

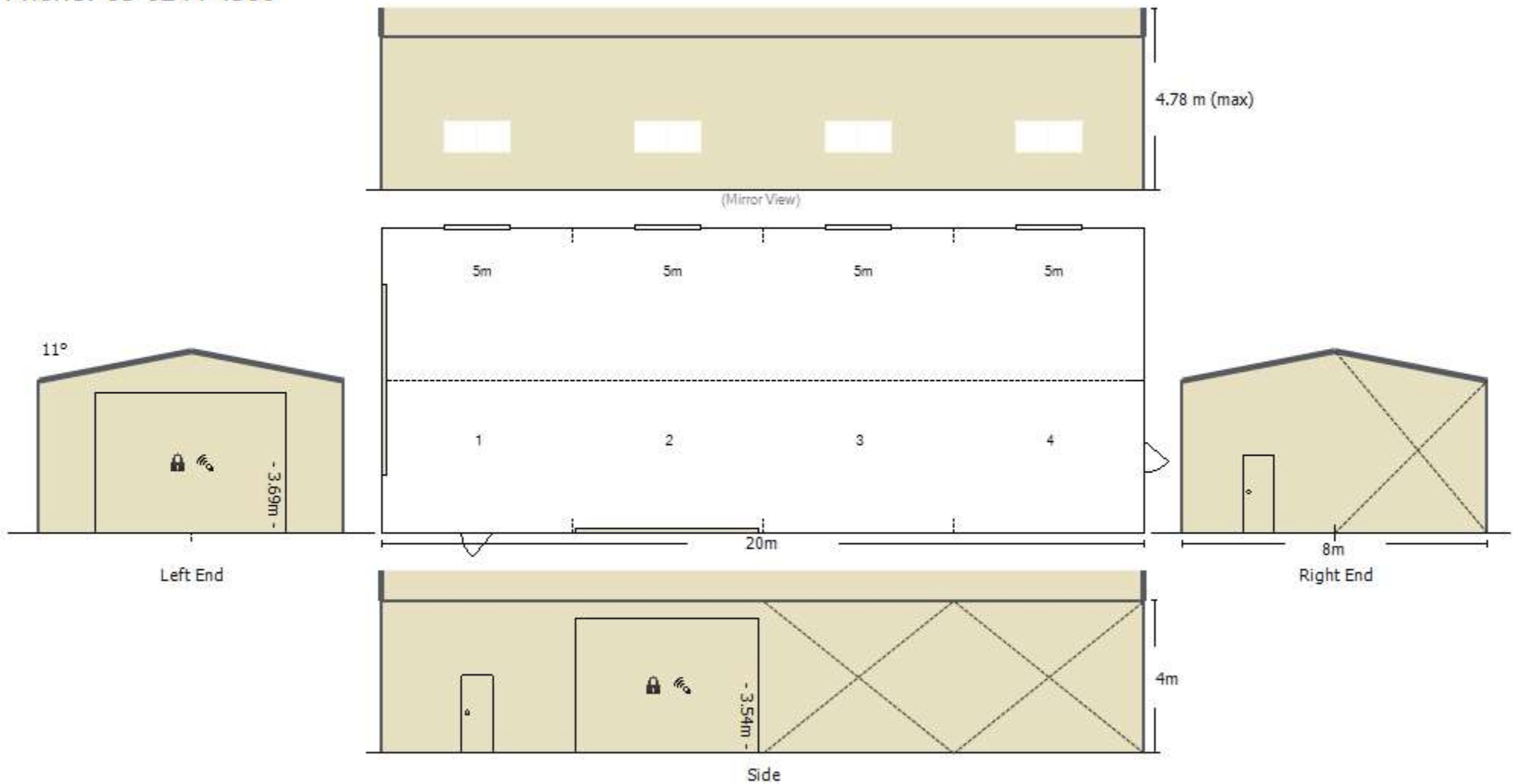
PAGE
1/1



Site office

Appendix J

Building For:
Nicholas Ashlin
73 Greenbanks Road Bridgewater
Job Number: 100809
Produced by:
Fair Dinkum Builds Hobart
Phone: 03 6244 4300



73 Greenbanks Road – Utilities infrastructure

Schematic Design Report – Civil Engineering

**Pitt & Sherry
(Operations) Pty Ltd**
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

Located nationally —

Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport



Amended Submission to Planning Authority Notice

Application details

Council Planning Permit No.	DA 2024/244
Council notice date	20/01/2025
TasWater Reference No.	TWDA 2025/00053-BTN
Date of response	29/01/2025
Date of amended	28/02/2025
TasWater Contact	Huong Pham
Phone No.	0427 471 748
Trade waste Contact	James Paul
Phone No.	0477 866 927

Response issued to

Council name	BRIGHTON COUNCIL
Contact details	development@brighton.tas.gov.au

Development details

Address	73 GREENBANKS RD, BRIDGEWATER
Property ID (PID)	2843300
Description of development	Electrical Reticulation Services and Associated Services

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Issue date
Pitt&sherry	S-P.24.1232-CIV-DRG sheets 1101, 1201	B	18/02/2025
	S-P.24.1232-CIV-SKT-1501	B	19/02/2025
	Hydraulic sizing assessment	N/A	18/02/2025

Conditions

Pursuant to the *Water and Sewerage Industry Act 2008 (TAS)* Section 56P(1) TasWater imposes the following conditions on the permit for this application:

CONNECTIONS, METERING & BACKFLOW

1. A suitably sized water supply with metered connection and sewerage system and connection to the development must be designed and constructed to TasWater's satisfaction and be in accordance with any other conditions in this permit.
2. Any removal/supply and installation of water meters and/or the removal of redundant and/or installation of new and modified property service connections must be carried out by TasWater at the developer's cost.
3. Prior to commencing construction of the subdivision/use of the development, any water connection utilised for construction/the development must have a backflow prevention device and water meter installed, to the satisfaction of TasWater.

TRADE WASTE

4. The cooling chemical the customer is using: 'Shell immersion cooling fluid s3 x', is not suitable for discharge to sewer. No Trade Waste Agreement can be issued.

56W CONSENT

5. Prior to the issue of the Certificate for Certifiable Work (Building) and/or (Plumbing) by TasWater the applicant or landowner as the case may be must make application to TasWater pursuant to section 56W of the Water and Sewerage Industry Act 2008 for its consent in respect of that part of the development which is built within a TasWater easement or over or within two metres of TasWater infrastructure.
6. The plans submitted with the application for the Certificate for Certifiable Work (Building) and/or (Plumbing) must show footings of the proposed fence & internal road located over or within 2.0m from TasWater pipes to be designed by a suitably qualified person to adequately protect the integrity of TasWater's infrastructure, and to TasWater's satisfaction ensure that no loads are transferred to TasWater's pipes. These plans must also include a cross sectional view through the fence footings and road which clearly shows;
 - a. Existing 450mm MSCL reticulation main and 571mm MSCL bulk transfer main depth and location and proposed finished surface levels over the pipes;
 - b. Footings of the proposed fence posts must be located outside the easements and no closer than 1m from the outside pipewalls of the pipes;
 - c. Where the road is located over TasWater pipes a minimum cover of 750mm must be provided and;
 - d. A note on the plan indicating how the pipe locations and obvert depths were ascertained.

DEVELOPMENT ASSESSMENT FEES

7. The applicant or landowner as the case may be, must pay a development assessment fee of \$403.51 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date paid to TasWater.

The payment is required within 30 days of the issue of an invoice by TasWater.

Advice

General

For information on TasWater development standards, please visit

<https://www.taswater.com.au/building-and-development/technical-standards>

For application forms please visit

<https://www.taswater.com.au/building-and-development/development-application-form>

Trade Waste

The proposed use of a Trade Waste Agreement or Consent to manage any potential spills within chemical storage bunds is not viable, as this chemical is not suitable for discharge to sewer.

Any bunds the customer builds need to be 'blind', meaning no connection to sewer.

Any spills or contaminated stormwater need to be collected by appropriately licenced contractors, and disposed of to a licenced waste treatment facility.

Service Locations

Please note that the developer is responsible for arranging to locate the existing TasWater infrastructure and clearly showing it on the drawings. Existing TasWater infrastructure may be located by a surveyor and/or a private contractor engaged at the developers cost to locate the infrastructure.

- (a) A permit is required to work within TasWater's easements or in the vicinity of its infrastructure. Further information can be obtained from TasWater.
- (b) TasWater has listed a number of service providers who can provide asset detection and location services should you require it. Visit <https://www.taswater.com.au/building-and-development/service-locations> for a list of companies.
- (c) Sewer drainage plans or Inspection Openings (IO) for residential properties are available from your local council.

NOTE: In accordance with the WATER AND SEWERAGE INDUSTRY ACT 2008 – SECT 56ZB A regulated entity may charge a person for the reasonable cost of –

- (a) a meter; and
- (b) installing a meter.

56W Consent

The plans submitted with the application for the Certificate for Certifiable Work (Building) and/or (Plumbing) will need to show footings of proposed buildings located over or within 2.0m from TasWater pipes and will need to be designed by a suitably qualified person to adequately protect the integrity of TasWater's infrastructure, and to TasWater's satisfaction, be in accordance with AS3500 Part 2.2 Section 3.8 to ensure that no loads are transferred to TasWater's pipes. These plans will need to also include a cross sectional view through the footings which clearly shows;

- (a) Existing pipe depth and proposed finished surface levels over the pipe;
- (b) The line of influence from the base of the footing must pass below the invert of the pipe and be clear of the pipe trench and;
- (c) A note on the plan indicating how the pipe location and depth were ascertained.

(d) The location of the property service connection and sewer inspection opening (IO).

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.