Environmental Management Plan – Operations

Whale Point Nursery 2024

1. Document Control

1.1 Site

Whale Point Nursery
85 Whale Point Road
Port Huon TAS 7116
P. 03 6146 3731

1.2 Environmental Licences

Environmental Licence	10296-2
Fish Farm Licence	85
Water Licence	500264

1.3 Certifications

Global Gap	4052852253840
RSPCA	17661

1.4 Acknowledgement of EMP

I, David Mitchell, General Manager Freshwater for Huon Aquaculture, acknowledge the contents of this Environmental Management Plan – Operations for the Whale Point Nursery

David Mitchell GM Freshwater 

1.5 Document Revision History

Revision	Date	Revision Description	By
1	01/01/19	Version 1	Adam Chapman
2	31/03/21	Update changes to site information	Adam Chapman
3	01/11/22	Update to comply with EL10296/2 condition OP4	Adam Chapman
3.1	28/06/2024	Update in response to EPA comments and staff changes	James Hill / Katherine O'Connor

NOTE: This revision control matrix is to be kept up to date and must list the latest and each revision of the EMP. The Effective date and Version number is to be incorporated in the document header on every page.

Contents

Glossary

Activity	Any environmentally relevant activity (as defined in Section 3 of EMPCA).
AusRivas	Australian Rivers Assessment System (used to identify macro-Invertebrates)
Biomass Limit	The maximum amount of stock allowable onsite at any given time
BOD	Biological Oxygen Demand
Culls	Fish that are not required for future growout
Director	Director of Salmon Regulation, EPA Tasmania
Effluent	Wastewater discharged from the activity
EL	Environmental Licence issued 10296 by EPA
EPA	Tasmanian Environment Protection Authority
EMP	Environmental Management Plan
EMPCA	*Environmental Management and Pollution Control Act 1994 (TAS)*
FIP	Freshwater Improvement Programme
Huon Aquaculture, Huon, or HAC	Huon Aquaculture Company Pty Ltd
LoR	Limit of Reporting – the lowest level that the laboratory can accurately report
Macro-Invertebrates	Macroinvertebrates are animals without a backbone, that can be seen with the naked eye. A diverse group that includes worms, snails, spiders, crustaceans, and insects (mayfly larvae etc),
Measurement Uncertainty	Laboratory possible variation in sampling results.
Microstrainer, Drum Filter	A rotating filter designed to capture solids from flowing water
NATA	National Association of Testing Authorities used for laboratory sampling
Organic Waste	Fish (including mortalities and culls), fish faeces, waste feed or a combination of all three
Quarterly	Every 3 months
RAS	Recirculated Aquaculture System
Sludge	Salmon faeces – either liquid (concentrated sludge) or solids,

2. Introduction

This Environmental Management Plan (EMP) – Operations has been prepared for Huon Aquaculture Company Pty Ltd.'s (Huon's) current Whale Point Nursery operations.

The following document provides a framework for the environmental management and regulation of the Whale Point Nursery. The aim of the document is to describe the environmental operational requirements across the site including site-specific discharge limits, waste management, noise control, primarily to reduce the potential for any adverse environmental impacts.

Data collected will allow Huon to identify where improvements could be made to further improve site discharge water quality, with a goal for annual improvement wherever possible.

This Plan will be reviewed and updated on an ongoing basis.

Note, Huon is proposing to expand its Whale Point Nursery facility. A Notice of Intent (NOI) was submitted to EPA in November 2023 and Environmental Impact Statement (EIS) Guidelines issued in January 2024 for the expansion project. Huon intends to submit an EIS in mid-2024. Following commissioning of the project, a revised EMP will be prepared in line with new Environmental Licence Conditions issued by EPA.

3. Environmental Regulatory Requirements

The following environmental regulatory documents are relevant to Whale Point Nursery:

3.1 Fish Farm Licence

Under the *Inland Fisheries Act 1995,* the Inland Fisheries Service (IFS) is responsible for licensing inland fish farms. A fish farm licence outlines total quantity of fish allowed to be farmed, a requirement to prepare and implement a Fish Farm Management Plan to manage biosecurity, and a requirement to hold other valid licences and/or approvals to operate.

Whale Point Nursery operates under IFS **Fish Farm Licence 85**. A copy of the licence is kept in the Whale Point Nursery Control Room.

3.2 Environmental Licence

Under the *Environmental Management and Pollution Control Act 1994* (EMPCA), the Environment Protection Authority (EPA) regulates land-based finfish farms, including freshwater hatcheries, that hold over 2 tonnes of biomass or have an annual production over 5 tonnes.

Finfish farms are classed as Level 2 Activities under EMPCA and issued Environmental Licences relevant to their site activities. Environmental Licence conditions may contain conditions relating to noise, odour, effluent or water quality, waste management and chemical storage requirements.

Whale Point Nursery operates under EPA **Environmental Licence (EL) 10296**. A summary of licence conditions can be found in **Sections 6 – 17** of this plan. A copy of the licence is kept in the Whale Point Nursery Control Room.

3.3 Water Licence

Finfish farm operators that wish to use and store water from Tasmanian rivers, streams and dams for farming purposes must obtain a Water Licence from Department of Natural Resources and Environment Tasmania (NRET) under the *Water Management Act 1999.*

Water Licences outline daily, and annual water allocation amounts as well as requirements to measure and maintain river flow.

Whale Point Nursery operates under NRET **Water Licence 500264**. The water allocation in the licence is shared by Whale Point Nursery, Netslab and Tassal jetty operations. A copy of the licence is kept in the Whale Point Nursery Control Room.

All Huon staff and contractors have an obligation to ensure that their operational activities comply with all relevant regulatory requirements. All staff must be made aware of environmental requirements as part of an environmental induction process.

4. Environmental Contacts

The following staff can be contacted regarding environmental management queries or concerns at the Whale Point Nursery:

Table 1: Whale Point Nursery Environmental Team

Position	Name	Phone	Email
Hatchery Manager	Lindsay Pettit	0428 594 467	lpettit@huonaqua.com.au
Assistant Hatchery Manager	Justin Sanguinetti	0400 337 745	jsanguinetti@huonaqua.com.au
Assistant Hatchery Manager	Wade Parremore	0438 654 740	wparremore@huonaqua.com.au
Freshwater Environment Manager	James Hill	0408 622 790	jhill@huonaqua.com.au
Compliance Manager	Katherine O'Connor	0409 774 460	compliance@huonaqua.com.au
Fish Health Manager (fish health and biosecurity related matters)	Jasmine Knowles	0429 200 573	jknowles@huonaqua.com.au
General Manager Freshwater	David Mitchell	0427 353 334	dmitchell@huonaqua.com.au
Maintenance Manager	Dave Churches	0448 458 019	dchurches@huonaqua.com.au

5. Environmental Documents

The following environmental documents are referenced in this plan:

- Whale Point Fish Farm Management Plan
- Huon Aquaculture's Freshwater Improvement Programme (V4, 2021) (FIP)
- Whale Point Contingency Management Plan 2019
- Groundwater and Surface Water Monitoring - Whale Point Salmon Nursery Monitoring Plan (Macquarie Franklin, May 2019)
- Noise Monitoring – Whale Point Salmon Nursery Baseline Noise Survey (NVC, June 2019)
- Odour Monitoring - Odour Assessment of Whale Point Salmon Nursey (Katestone Nov 2020)
- Whale Point Development Proposal and Environmental Management Plan (DPEMP) (version – FINAL, Aug 2017)

Copies are kept on the R Drive in the Whale Point Environment Folder. For any document queries contact the Freshwater Environment Manager.

Note, all site documentation will be revised following the Whale Point facility expansion. The above list of documentation will continue to be referred to in the interim.

6. General Environmental Management

6.1 Biomass Limits (G1)

The Site must not exceed the following Biomass limits:

Table 2: Maximum Biomass Whale Point Nursery

Site	Maximum Standing Biomass Limit
Whale Point Nursery	786 Tonnes*

** Request to increase biomass to 786 tonnes submitted to EPA as part of NOI for the Whale Point Expansion Project.*

FishTalk automatically calculates estimated Biomass daily using an expected growth equation. Site staff conduct weight testing once a week (Monday at Whale Point) and record accurate biomass on Day Sheets (AQF3112) which are sent to the Admin Officer to correct on Fish Talk, the weekly weight testing figure resets Fish Talk to ensure accuracy.

A weekly report is generated by Power BI and is sent to all facility managers. The report details current standing biomass, tonnage before trigger limit is reached and the maximum biomass (licence limit) for the facility to enable planning to be undertaken to prevent exceedances of the biomass limit.

For any queries regarding biomass figures contact the Huon Fish Talk team below.

Table 3: Fish Talk Queries

Position	Name	Phone	Email
Admin Officer	Janita Kean	6266 6058	jkean@huonaqua.com.au
Operations Support	Amy Taylor	0427 698 286	ataylor@huonaqua.com.au

If Biomass reaches >600T at the end of a month, the Freshwater Environment Manager will contact the GM Freshwater to ensure that Biomass will not exceed the design capacity of the facility.

Any exceedance of the maximum standing biomass or expected exceedance of the standing biomass will require immediate notification to the Freshwater Environment Manager who will then immediately notify the Director of EPA of the potential level of exceedance and reasoning for the exceedance.

6.2 Access and Awareness of Conditions (G2)

It is a licence requirement that a copy of the Environmental Licence and any associated environmental plans/documents be stored in a location that is known to and accessible to all Managers.

Managers must ensure that all persons undertaking work at Whale Point, including contractors and sub-contractors, are familiar with these conditions to the extent that is relevant to their work.

A copy of the Whale Point Environmental Licence and associated plans are located in the Whale Point Nursery Control Room.

6.3 Incident Response (G3)

If an incident causing or threatening environmental nuisance or harm occurs, staff must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

Staff are to refer to the Whale Point Environmental Incident Response Plan 2019 for protocols on how to respond to an environmental incident. The Plan is located in the Whale Point Nursery Control Room.

Environmental incidents are to be reported to the Hatchery Manager who will notify the Freshwater Environment Manager. The Freshwater Environment Manager will notify regulatory authorities and relevant Huon staff and undertake an Incident Investigation.

6.4 No changes to activity without approval (G4)

Some operational changes may require EPA approval before they can go ahead.

If a staff member feels that a proposed change to operations may increase the emission of a pollutant which may cause environmental harm or nuisance, they should immediately notify their Manager.

Managers are to notify the Freshwater Environment Manager who will assess the proposal and determine if EPA require notification.

Changes to operations may include:

a) a change to a process used in the course of carrying out the activity; or
b) the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
c) a change in the quantity or characteristics of materials used in the course of carrying out the activity.

6.5 Change of Responsibility (G5)

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person succeeding him or her as the person responsible for the activity before such cessation.

The Compliance Manager will notify EPA if there are any changes to persons responsible.

6.6 Change of Ownership (G6)

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

The Compliance Manager will notify EPA if there are any changes to ownership.

6.7 Complaints Register (G7)

If a complaint is received by a staff member, that complaint must be reported to the Manager who will direct it to the Freshwater Environment Manager and Communications team to investigate.

Public complaints must be recorded in a register which must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:

1. the date and time at which the complaint was received.
2. contact details for the complainant (where provided).
3. the subject-matter of the complaint.
4. any investigations undertaken with regard to the complaint; and
5. the manner in which the complaint was resolved, including any mitigation measures implemented.

The register will be maintained by the Community Relations team and complaints for the year summarised in the site Annual Environmental Management Review by the Freshwater Environment Manager. Complaint records must be maintained for a period of at least 3 years.

6.8 Annual Environmental Management Review (G8)

An Annual Environmental Management Review (AEMR) is prepared by the Freshwater Environment Manager and approved by the General Manager each year.

The AEMR for the previous calendar year (1 January – 31 December) is due to EPA by 31st of March each year.

The AEMR must include the following information:

1. A statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the AEMR.
2. Subject to the Personal Information Protection Act 2004, a list of all complaints received from the public during the reporting period concerning actual or potential environmental harm or environmental nuisance caused by the activity and a description of any actions taken as a result of those complaints.
3. Details of environment-related procedural or process changes that have been implemented during the reporting period.
4. A summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reporting period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the next reporting period should be detailed.
5. Details of all non-trivial environmental incidents and/or incidents of non-compliance with permit or environment protection notice conditions that occurred during the reporting period, and any mitigation or preventative actions that have resulted from such incidents.
6. A summary of the monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reporting period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanation of significant deviations between actual results and any predictions made in previous reports must be provided.
7. Identification of breaches of limits specified in these conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of the actions taken in response to each identified breach of limits or variance from predictions.
8. A list of any issues, not discussed elsewhere in the report, that must be addressed to improve compliance with these conditions, and the actions that are proposed to address any such issues.
9. A summary of fulfilment of environmental commitments made for the reporting period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments; and
10. A summary of any community consultation and communication undertaken during the reporting period; and
11. Strategic consideration of potential changes to the activity during the next 12 months that may have environmental impacts.
12. A summary of net liner monitoring results (refer **Section 8**).
13. Groundwater and surface water monitoring results (refer **Section 9**).

6.9 Fish Farm Management Plan (G9)

Whale Point Fish Farm Management Plan (FFMP) was approved by EPA and Inland Fisheries Services in accordance with Environmental Licence Condition G9 and Fish Farm Licence Condition 2.

Managers are responsible for ensuring all staff working onsite are aware of biosecurity protocols and adhere to the FFMP.

The FFMP Plan is located in the Whale Point Nursery Control Room.

For any queries regarding biosecurity contact the Vet Health Manager below.

Table 4: Biosecurity Queries

Position	Name	Phone	Email
Vet Health Manager	Jasmine Knowles	0429 200 573	jknowles@huonaqua.com.au

7. Effluent Monitoring

Effluent monitoring and reporting is conducted by the Freshwater Environment Manager in accordance with the conditions below.

Any queries regarding Effluent Monitoring should be directed to the Freshwater Environment Manager.

7.1 Effluent Discharge Locations (EF1)

Effluent must only be discharged into the Whale Point Dam then net-liners located immediately adjacent to Whale Point Jetty and must be used at finfish farming leases as described in section 3.10.3 and 3.10.7 of the DPEMP.

If a staff member notices effluent discharge occurring from any other location other than that described above, they must immediately contact the Freshwater Environment Manager.

7.2 Discharge Quality Limits (EF2)

Effluent discharge limits must comply with limits in Table 5.

Table 5: Whale Point Effluent Discharge Limits

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Parameters	**Unit of measurement**	**Frequency of Sampling**	**50th percentile Limit**	**90th percentile Limit**	**Maximum Limit**
Ammonia Nitrogen	mg/L	Monthly			1
Biological Oxygen Demand (BOD)	mg/L	Monthly			20
Conductivity	uS/cm	Monthly			1,000
Nitrogen (Total)	mg/L	Monthly	7	15	20
Oil & Grease	mg/L	Monthly	2	5	7
pH	Units	Monthly			6.5-8.5
Phosphorus (Total)	mg/L	Monthly	1	5	7
Thermotolerant Coliforms	CFU	Monthly	200	500	750
Total Suspended Solids	mg/L	Monthly			20

7.3 Monitoring/Sampling Locations

Effluent Monitoring must be conducted at the locations in Table 6 and shown in Image 1.

Table 6: Whale Point Monitoring (sampling) sites

Facility	Site name	Location
Whale Point	Whale Point Inlet (Kermandie Creek)	43°09'50.72 S - 146°57'00.89 E
	Whale Point Dam Outlet	43°9'42.40" S – 146°57'5035.69" E
	Whale Point Liner	43°9'46.49" S – 146°58'11.23" E

Image 1: Monitoring Locations Whale Point Facility

7.4 Monitoring/Sampling Parameters (M2)

The table below summarises the parameters required to be sampled, please note that there are additional sampling parameters beyond those required in the discharge limits in **Section 7.2**.

Table 7: Whale Point Monitoring (sampling) Parameters

Parameters	Unit of measurement	Monitoring Frequency
Ammonia Nitrogen	mg/L	Monthly
Conductivity	uS/cm	Monthly
Total Nitrogen	mg/L	Monthly
pH	pH units	Monthly
Total Phosphorus	mg/L	Monthly
Total suspended solids	mg/L	Monthly
Biological Oxygen Demand (BOD)	mg/L	Monthly
Oil and Grease	mg/L	Monthly
Thermotolerant coliforms	CFU	Monthly

Sampling is conducted at a minimum monthly, exceptions are if the site has had no discharge during that month.

Note, any changes to the parameters, sampling method and frequency of any monitoring program specified in these conditions must be approved in writing by the Director EPA prior to being implemented.

7.5 Monitoring/Sampling Requirements (M1)

Sampling will be conducted by the Freshwater Environment Manager. All samples must be taken and processed in accordance with the following:

1. Sampling and measuring must be undertaken by a person with training, experience, and knowledge of the appropriate procedure.
2. The integrity of samples must be maintained prior to delivery to a testing facility.
3. Samples must be tested in a laboratory accredited by the National Association of Testing Authorities (NATA), or a facility approved in writing by the Director for the specified test.
4. Results must be retained for at least three (3) years after the date of collection; and
5. Sampling and measurement equipment must be maintained and operated in accordance with manufacturer's specifications and records of maintenance must be retained for at least three (3) years.

7.6 Record Keeping

All results from sampling will be entered into Huon's environmental data management system EnviroDataVault by the Freshwater Environment Manager.

7.7 Submission of Monitoring/Sampling Results

It is the responsibility of the Freshwater Environment Manager to ensure that the submission of the sampling results are conducted in line the following conditions:

1. Monthly sampling results must be forwarded to the Director within 10 days of receipt of the monthly analytical results.
2. Results of analyses conducted by laboratory must be submitted on the original laboratory certificates.
3. Monthly reports must be submitted within 14 days of receipt of laboratory results.
4. Laboratory results and Monthly reports must be retained for a minimum of 3 years.

Table 8: Analytical Services Tasmania Contact Details

Company	Name	Phone	Email
Analytical Services Tasmania	Client Services	03 6165 3307	ASTClientServices@ast.tas.gov.au

7.8 Signage of Sampling/Monitoring Points (M3)

With the exception of open water sampling, all monitoring points must be clearly marked to indicate the location and name of the monitoring point. If a staff member notices a missing sign, please contact the Freshwater Environment Manager.

7.9 Internal Dam Monitoring

To monitor the effectiveness of the Wastewater Treatment Plant, the site conducts field sampling of dam for the following parameters:

- Ammonia (daily field sample)
- pH (daily field sample)
- Conductivity (weekly field sample)
- Nitrate (weekly field sample)
- Nitrite (weekly field sample)

Ammonia and pH are recorded daily by designated staff and analysed internally in the Whale Point Nursery laboratory. Results are recorded on the Day Sheet (AQF3112) and given to the Admin Officer at the end of each shift to enter on FishTalk.

Nitrate, Nitrite and conductivity are recorded weekly and analysed internally in the Whale Point Nursery laboratory. Results are recorded on the Day Sheet (AQF3112) and given to the Admin Officer at the end of each shift to enter on FishTalk.

At the end of each month this data is given to the Freshwater Environment Manager for review. If elevated ammonia is observed the site staff contact the Freshwater Environment Manager to discuss and look at options to rectify.

For queries on field data entry contact the Admin Officer below.

Table 9: Field Data Entry Contact

Position	Name	Phone	Email
Admin Officer	Janita Kean	6266 6058	jkean@huonaqua.com.au

8. Net Liner monitoring

8.1 Net Liner Field Monitoring (EF4)

Field monitoring is conducted at the Net Liner for the key parameters below:

- Salinity (fitted sensor)
- Temperature (fitted sensor)
- Liner depth (fitted sensor)

Salinity, temperature and depth are recorded through an automated system with access to the data on Huon's sharedrive. The Freshwater Environment Manager reviews the data to monitor effectiveness of the Wastewater Treatment Plant.

Depth, salinity and temperature are summarised in the Annual Environment Management Review by the Freshwater Environment Manager.

For queries on field data entry contact the Freshwater Environment Manager.

Table 10: Data Access for Liner field data

Position	Name	Phone	Email
Freshwater Environment Manager	James Hill	0408 622 790	jhill@huonaqua.com.au

8.2 Wastewater Reuse Water Volumes

8.2.1 Whale Point Dam

Whale Point dam is an overflow system that allows discharge to report to the Whale Point Net Liner via gravity flow. The dam is designed to operate at a stable level which is 1m below the emergency spillway, however, if the overflow (outlet) screen becomes blocked with leaves or rubbish, wastewater levels can slowly rise in the dam. The dam outlet must be inspected daily, and the screen cleaned using the long-handled broom located near the dam outlet.

All staff are required to monitor this either as part of their allocated shift work or just by viewing during daily inspections.

If a dam spill occurs and or the overflow screen appears to be blocked and cannot be cleaned, staff must contact the Freshwater Environment Manager immediately. Staff are to follow spill response protocols in the Environmental Incident Response Plan located in the Whale Point Control Room.

8.2.2 Net Liner Depth Management

The operating capacity of the Whale Point Net Liner is 6 megalitres, however, it is managed by its depth which is a maximum of 3 metres. The preferred maximum level for safe operation to prevent overflow is 2.5 metres.

Depth is monitored by the Water Manager, however, if Whale Point staff observe any issues with net liner leakage or overflow, please contact the Water Manager immediately. In the event a spill is detected, staff are to follow spill response protocols in the Environmental Incident Response Plan located in the Whale Point Control Room.

Table 11: Whale point Net Liner Depth management

Position	Name	Phone	Email
Water Manager	Dave Stockford	0427 869 759	dstockford@huonaqua.com.au

9. Ground and Surface Water Monitoring

9.1 Ground and Surface Water Monitoring (M5)

A Ground and Surface Water Monitoring Plan has been approved by EPA.

A copy of the Plan is located in the Whale Point Nursery Control Room.

Ground and surface water monitoring must be conducted in accordance with this plan by approved qualified consultants, currently this is Hydro Earth Consulting.

Sampling is conducted quarterly with data updated to EnviroDataVault data storage system by Huon. The Freshwater Environment Manager summarises the data received in the Annual Environmental Management Review.

For information regarding Ground and Surface water monitoring and data storage please contact the Freshwater Environment Manager or the Pinion Advisory team listed below.

Table 12: Current Groundwater and Surface water consultant

Company	Contact	Phone	Email
Hydro Earth Consulting	Dr. Adam King – Director	0425 896 539	aking@hydroearth.com.au
	Joe Water-Sims – Consultant	0402 687 619	joew@hydroearth.com.au

There are currently eight existing groundwater monitoring bores on the Whale Point property. Five groundwater bores (GW2, GW3, GW5, GW6 and GW7) are sampled during each monitoring event. Bore identification codes and location coordinates (in GDA94) are presented in **Table 13** and shown in **Figure 1.**

Table 13: Bore Locations Whale Point facilities

Bore ID	Easting	Northing	Bore Depth
GW2	496584	5221292	4.12
GW3	496629	5221255	9.82
GW4	496665	5221251	9.34
GW5	496705	5221239	8.17
GW6	496571	5221277	4.65
GW7	496609	5221054	3.97

Figure 1: Groundwater (GW) and Surface water (SW) locations Whale Point Facility

10. Flow Monitoring

10.1 Daily Flow Monitoring

Flow is required to be measured and recorded daily on the Whale Point Day Sheet (AQF3112) by the appropriate staff.

As with other field parameters the sheet is submitted to Admin Officer at the end of each shift (every Wednesday night) who will enter the data on Fishtalk.

The Flow meter is located outside the Wastewater Treatment Plant between the plant and collection tank.

A flow summary is presented within the annual report prepared by the Environment Manager.

10.2 Flow Monitoring Equipment (M4)

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

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

3 For the purposes of this condition:

3.1 'validate' means to undertake a set of actions including inspecting the flow monitoring equipment to check that it is installed in compliance with any relevant standards and is maintained to an acceptable state of repair, which provides an acceptable level of confidence that the flow monitoring equipment operates within an acceptable range of error under normal operating conditions.

3.2 'Flow monitoring equipment' means an instrument, including a flow meter, that measures and may record a flow or level of liquid and includes any ancillary device attached to or incorporated into the instrument.

Flow Monitoring equipment must be maintained to the above conditions. It is the responsibility of the Maintenance Manager to ensure that the flow equipment is maintained to the manufacturer's specifications.

Table 14: Flow Monitoring Equipment Management responsibility

Position	Name	Phone	Email
Maintenance Manager	Dave Churches	0448 458 019	dchurches@huonaqua.com.au

11. Noise Management

11.1 Noise Limits (N1)

Noise limits must comply with condition N1 of the EL. This includes:

1 Noise emissions from operations when measured at any noise sensitive premises in other ownership must not exceed -

45 dB(A) between **07:00** and **18:00** hours (Day time); and

40 dB(A) between **18:00** and **22:00** hours (Evening time); and

35 dB(A) between **22:00** hours and **08:00** hours (Night-time)

2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).

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

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

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

11.2 Noise Monitoring (N2 & N3)

The Whale Point facility has conducted noise monitoring by a qualified noise and vibration consultant to ensure compliance with conditions N2 and N3. A copy of the report - *Whale Point Salmon Nursey Baseline Noise Survey* (June 2019, NVC) is kept in the Control Room.

If a staff member receives a noise complaint or notices a noise nuisance that may potentially extend past the site boundary, contact the Environment Manager who will, if required, contact the approved noise consultant to survey the site.

Table 15: Whale Point Noise Consultant

Company	Contact	Phone	Email
Noise and Vibration Consulting (NVC)	Jaye Parry	0434 056 286	jayeparry@nvc.com.au

12. Odour Management

12.1 Odour Management (A1)

Huon has an obligation to institute odour management measures as are necessary to prevent odours causing environmental nuisance at or beyond the boundary of The Land, including but not limited to:

1. All components of the Wastewater Treatment Plant (WWTP), with exception of the ozonation unit, must be located in an enclosed building, which must be kept under negative pressure.
2. Solid organic waste generated on The Land must be contained within the WWTP building or a freezer (refer **Section 14** for details); and
3. At least once per week the solid organic waste generated on The Land must be disposed to a composting facility, which has all necessary approvals to conduct such activities (refer **Section 14** for details).

Managers are responsible for ensuring these conditions remain complaint. If there are any concerns the site may become non-compliant with condition A1, contact the Freshwater Environment Manager.

12.2 Odour Monitoring (A2, A3 & A4)

The Whale Point Nursery has conducted odour monitoring to ensure compliance with conditions A2, A3 and A4. A copy of the report - *Whale Point Odour Impact Assessment August 2020*, is kept in the Whale Point Nursery Control Room.

If a staff member notices an odour issue that may potentially cause odours that may extend past the site boundary, the staff member should contact the Manager immediately who will notify the Freshwater Environment Manager.

The Environment Manager will investigate the issue and if required will contact the odour assessment specialist Katestone to assess the potential for the odour to cause nuisance beyond the site boundary.

Table 16: Whale Point Odour assessment specialist

Company	Contact	Phone	Email
Katestone	Andrew Vernon	0401 386 459	andrew.vernon@katestone.com.au

13. Stormwater Management

Stormwater management conditions SW1, SW2 and EF3 are largely related to construction of the Whale Point Nursery and dam however monitoring for stormwater run-off issues will be ongoing.

The Maintenance Manager is responsible for the inspection of all drainage areas and ensuring that no pollutants such as sediments, waste debris, oil or grease are present within the sites gutters or stormwater drainage.

If staff notice any drainage or erosion issues onsite, contact the Maintenance Manager immediately.

Table 17: Stormwater and drainage areas

Position	Name	Phone	Email
Maintenance Manager	Dave Churches	0448 458 019	dchurches@huonaqua.com.au

13.1 Perimeter Drains or Bunds (SW1)

1. Perimeter cut-off drains, or bunds, must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bands, remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.
2. Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20-year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

13.2 Stormwater (SW2)

1. Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
2. Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside The Land.
3. All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

13.3 Spillway and Drainage Channel (EF3)

All reasonable measures must be implemented to prevent erosion of the land and ensure solids do not become entrained in stormwater.

14. Waste Management

All "Organic Wastes" such as fish feed, mortalities, culls, liquid, and solid sludges must be managed in accordance with this section. In the event of a waste spill, staff are to follow the Environmental Incident Response Plan located in the Whale Point Control Room.

14.1 Fish Waste (WM4)

1. Fish waste (mortalities and culled fish) generated must be kept in leak-proof durable containers, which must be kept closed and sealed when putrescible material is being held in them, to the extent practical and reasonable.
2. Fish waste must be disposed of to a composting facility or reuse site which has all necessary approvals to conduct these activities.

14.2 Solid Organic Waste (WM5)

1. Waste sludge from the Wastewater Treatment Plant (WWTP), consisting of solids from the recirculation system, microstrainer wastes, fish faeces, uneaten fish pellets and other solids must be managed in a secure manner and in such a way that will not cause an environmental nuisance or environmental harm.
   This is achieved by storing organic fish waste as it is generated within leak proof, durable plastic lidded bins which are sealed on filling.
2. All Organic Solids must be removed from the site within 7 days of generation.
3. If Land spreading, either on or off site is proposed, the Director, and Council's General Manager or the Council Officer must be notified, and the spreading must adhere to the Tasmanian Biosolids Reuse Guidelines 1999, or an amended document must be followed where additional Environment Protection Notices or licences may be required. Spreading can only be conducted with an approved plan to an approved location.
4. Wastes containing Restricted Animal Matter (RAM) (this is all sludge, fish feed or any fish) must be managed to prevent ruminant stock accessing RAM. Exclusion of stock to reuse operations must be 21 days post waste reuse.

   For queries on land spreading or RAM management contact the Sustainability Officer.

Table 18: Whale Point Land Spreading Contact

Position	Name	Phone	Email
Sustainability Officer	Drew Rapley	0429 271 837	drapley@huonaqua.com.au

14.3 Wastewater

1. All wastewater from Nursery operations must be directed to the Wastewater Treatment Plant (WWTP) and treated through the site's wastewater treatment process.
2. Only trained staff can operate the WWTP.
3. All wastewater must be treated through the wastewater process which includes coagulation, pH correction, flocculation, solids separation, and disinfection.
4. Solids generated by this process must only be stored within the WWTP or within the liquid storage tank adjacent to the WWTP or within sealed insulated bins opposite the WWTP awaiting collection. (See Image 2 for approved waste storage areas)

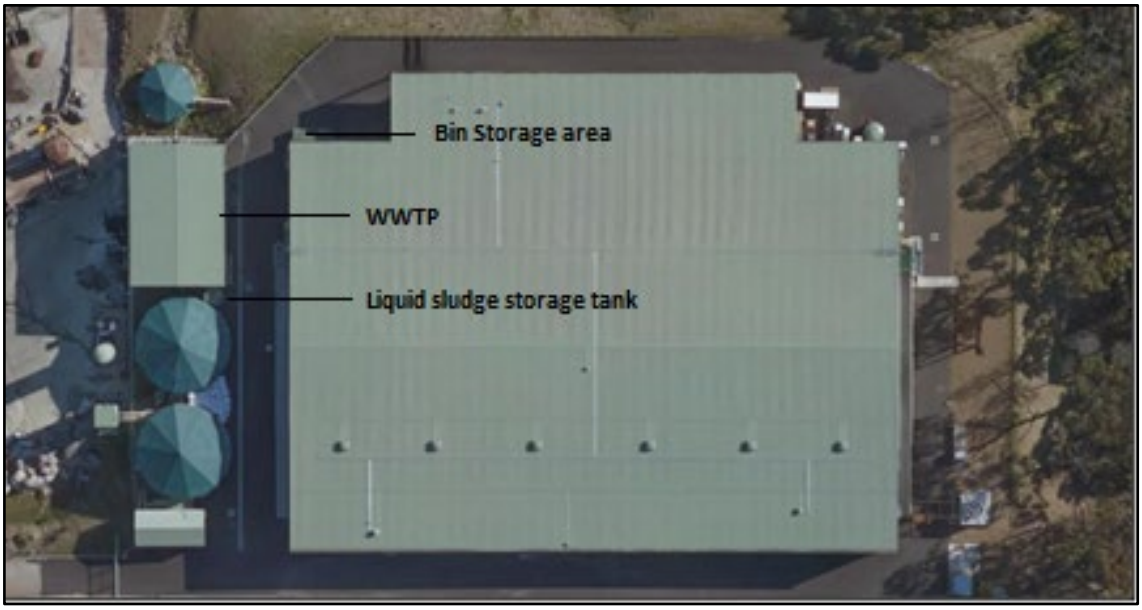

Image 2: Approved Waste Storage Areas Whale Point

14.4 Controlled waste transport

Transport of controlled wastes to and from The Land must be undertaken only by persons authorised to do so under EMPCA. Several waste transport operators are available that hold the appropriate controlled waste transport certificate.

For queries on controlled waste transport contact the Sustainability Officer.

Table 19: Whale Point Land Spreading Contact

Position	Name	Phone	Email
Sustainability Officer	Drew Rapley	0429 271 837	drapley@huonaqua.com.au

14.5 Controlled waste register (WM3)

A Controlled Waste Register must be maintained and will be made available for inspection by EPA upon request.

The controlled waste register must contain:

1. An accurate record of type and quantity of Controlled Wastes stored on the land.
2. The type of Controlled Waste (either liquid or solids).
3. The quantity of Controlled Waste removed from the site.
4. The Controlled Waste Transporter who moved the Controlled Waste.
5. The date the Controlled Waste was moved.
6. The recipient of the Controlled Waste.
7. The destination address of the Controlled Waste.

Records will be maintained for a period of 3 years. Huon does not keep register onsite, however Spectran maintains a waste disposal record that is sent to the Sustainability Officer monthly and Fresh Environment Manager annually.

For queries on controlled waste records contact the Freshwater Environment Manager.

15. Hazardous substances

All staff should be trained in hazardous substances (chemical) storage and handling. Environmental Licence conditions H1, H2 and H3 outline requirements for hazardous substance management to minimise spill risks.

For further advice on appropriate storage, handling and spill management of hazardous contact your WHS Advisor.

In the event of a chemical, fuel or oil spill, staff are to follow the Environmental Incident Response Plan located in the Whale Point Control Room.

15.1 Storage and handling of hazardous materials (H1)

Unless otherwise approved in writing by the EPA Director, environmentally hazardous materials held on the land must be stored within impervious bunded areas, spill trays or other containment systems; and managed to prevent unauthorised discharge, emission, or deposition of pollutants to:

- soils within the boundary of the Land
- groundwater;
- waterways;
- or beyond the boundary of The Land.

If a staff member notices a chemical or hazardous material spill, leak, or any other concern, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

Spills or leaks are considered environmental incidents and must be reported to the Manager and Freshwater Environment Manager immediately.

15.2 Spill Kits (H2)

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

Spill kits should be stored near all main chemical usage/storage areas. If a spill kit is missing or needs restocking contact your WHS Advisor.

15.3 Inventory of Hazardous Materials (H3)

An inventory must be kept of all environmentally hazardous materials stored and handled on The Land. The inventory must specify the location of storage facilities and the maximum quantities of each environmentally hazardous material likely to be kept in storage and must include safety data sheets for those environmentally hazardous materials.

Each chemical storage area has a chemical movement register (AQF0081.1) where chemical usage is to be recorded. Additionally, your WHS Advisor maintains a site chemical inventory on ChemAlert.

16. General Operations

16.1 Contingency Management Plan (OP1)

A Contingency Management Plan has been prepared and submitted to EPA to account for non-routine environmental events that may occur during operations.

A copy of the plan is located in the Whale Point Nursery Control Room, and is titled Environmental Incident Response Plan Whale Point 2019

Managers must ensure all staff are aware of the plan and their responsibilities if a non-routine event occurs.

Staff are to notify the Manager and Environment Manager immediately if a non-routine event occurs.

16.2 Weed Management (OP2)

The land must be kept substantially free of weeds to minimise the risk of weeds being spread.

The Whale Point site conducts weed management to a council approved "Weed Management Plan" using an appropriately qualified weed contractor.

This plan endeavours to gradually reduce weed concentration across the entire site through targeted chemical addition and physical weed removal.

For weed management queries contact the Freshwater Environment Manager or Contractor below.

Table 20: Weed Management Contractor

Position	Name	Phone	Email
Approved Contractor	Adrian Blaschke	0448 911 791	mowxtas@gmail.com

16.3 Therapeutant and Chemical Use (OP3)

1. Therapeutant and cleaning chemicals must not be discharged to surface waters.
2. Residues of therapeutant and cleaning chemicals in wastes that are applied to land must not be in concentrations that would cause them to be pollutants or cause them to persist in the environment.
3. Records of all therapeutant and chemical use in fish husbandry and farm operations disposal must be kept for a minimum period of three years and must be provided to an authorized officer upon request. Records must include date of use, total volume, and method of disposal.

In the event of a therapeutant spill, staff are to follow the Environmental Incident Response Plan located in the Whale Point Control Room.

16.4 Operations Environmental Management Plan (OP4)

A copy of this OEMP has been submitted to EPA in accordance with condition OP4.

A copy of this document is kept in the Control Room. Managers are to ensure all staff are aware of the OEMP.

17. Decommissioning and Rehabilitation

17.1 Notification of cessation (DC1)

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

EPA Notification will be the responsibility of the Compliance Manager.

17.2 Decommissioning and Rehabilitation requirements (DC2)

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

Preparation of the DRP will be the responsibility of the Freshwater Environment Manager.

17.3 Temporary suspension of activity (DC3)

Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.

During temporary suspension of the activity:

1. The Land must be managed and monitored by the person responsible for the activity to ensure that emissions from The Land do not cause serious environmental harm, material environmental harm or environmental nuisance; and
2. If required by the Director a Care and Maintenance Plan for the activity must be submitted, by a date specified in writing by the Director, for approval. The person responsible must implement the approved Care and Maintenance Plan, as may be amended from time to time with written approval of the Director.
3. Unless otherwise approved in writing by the Director, if the activity on The Land has substantially ceased for 2 years or more, rehabilitation of The Land must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

EPA Notification will be the responsibility of the Compliance Manager, preparation of the Care and Maintenance Plan will be the responsibility of the Freshwater Environment Manager.

17.4 Implementation of the DRP (DC4)

Following permanent cessation of the activity, the decommissioning of the activity and the rehabilitation of The Land must be carried out in accordance with the most recent Decommissioning and Rehabilitation Plan (DRP) approved by the Director, as may be amended from time to time with written approval of the Director.

This will be the responsibility of the Freshwater Environment Manager.

18. Environmental Risk Assessment

Huon has conducted an environmental risk assessment to identify key environmental aspects and impacts from the ongoing operation of the activity over the next 5 years. The risk assessment methodology aligns with JBS Australia's procedure for identification of Environmental Impacts (*CEM_6.1.1_AI Information on Environmental Aspects*). The risk assessment is contained in Table 21 below.

Activities that have been assessed as Medium Risk include:

- Management of water quality from the Wastewater Treatment Plant.

This issue requires ongoing management and has been actioned below (refer **Section 19** Continual Improvement Plan).

Activities assessed as Low Risk include:

- Management of wastewater treatment
- Mort storage and disposal
- Smolt transfer
- Feed transfer and storage
- Chemical handling and storage
- Daily operation of the Nursery

Huon's existing control measures have been assessed as adequate to continue management and mitigation of these activities.

In the event of an environmental incident or emergency, Huon's Environmental Risk Assessment will be reviewed and updated.

Note, following commissioning of the Whale Point Facility Expansion, a revised Environmental Risk Assessment will be undertaken in line with new Environmental Licence Conditions issued by EPA. In the interim, Huon will continue to manage environmental risk based on the site's existing risk assessment.

Table 21: Environmental Risk Assessment Whale Point Nursery

ACTIVITY	ASPECT:	IMPACT:	SCALE RATING:	SEVERITY OF RATING	SENSITIVITY RATING	CONTROL RATING	PROBABILITY RATING	RISK SCORE	RISK RATING	CONTROLS
Chemical storage	Major leaking/spillage of chemical product	Contamination of water / land	3	3	3	2	2	108	3-LR	All items are bunded and stored indoors or concrete. Spills report to WWTP and dam. Spill kit onsite and staff trained in chemical handling and storage
Chemical storage	Minor leaking/spillage of chemical product	Contamination of water / land	2	2	2	2	2	32	3-LR	All items are bunded and stored indoors or concrete. Spills report to WWTP and dam. Spill kit onsite and staff trained in chemical handling and storage
Feed Transfer (inwards) via truck	Leaking/spillage of feed	Contamination of Land	3	2	1	2	1	12	3-LR	Unloading area is concreted so spills can be easily swept up - brooms and shovels available onsite, staff trained to drive forklift, spills would report to WWTP and dam.
Feed storage	Attracts vermin	Disease, feed contamination	2	2	2	2	2	32	3-LR	Feed stored inside in heavy duty feed bags inside, units disposed of if required, rat vermin baiting by contractor
General site operations	Consumption of Energy - electric	Reduction or Depletion of Natural Resources	4	1	1	2	4	32	3-LR	Routine maintenance/service schedule, consolidation of operating equipment
General site operations	Atmospheric Emissions - Greenhouse gas	Contamination of Air/Atmosphere	4	1	1	2	4	32	3-LR	Routine maintenance/service schedule, consolidation of operating equipment
General site operations	Consumption of Water	Reduction or Depletion of Natural Resources	3	2	2	2	4	96	3-LR	Recirculation of water

ACTIVITY	ASPECT:	IMPACT:	SCALE RATING:	SEVERITY OF RATING	SENSITIVITY RATING	CONTROL RATING	PROBABILITY RATING	RISK SCORE	RISK RATING	CONTROLS
General site operations	Noise emissions	Disturbance to the Neighbourhood/Community	3	2	2	2	2	48	**3-LR**	Enclosed insulated building, routine maintenance/service schedule, complaints investigation process
General site operations (night)	Light emissions	Disturbance to the Neighbourhood/Community	3	2	2	2	2	48	**3-LR**	Lights turned off when not in use, lights tilted downwards, physical barriers around site (e.g. forest)
General site operations	Waste escape	Disturbance to the Neighbourhood/Community	3	3	2	2	1	36	**3-LR**	Designated covered skip bin, collected by contractor as needed
Generator use / Refuelling	Major Leaking/spillage of oil/fuel	Contamination of Water	3	3	3	2	1	54	**3-LR**	Routine maintenance/service schedule, generator is self-bunded, fuel tank is self-bunded, spill kits stored in proximity, staff trained in fuel handling and spill response, spills report to WWTP and dam
Generator use / Refuelling	Minor Leaking/spillage of oil/fuel	Contamination of Water	2	2	2	2	2	32	**3-LR**	Routine maintenance/service schedule, generator is self-bunded, fuel tank is self-bunded, spill kits stored in proximity, staff trained in fuel handling and spill response, spills report to WWTP and dam
Mass mortality	Waste generation requiring disposal	Increased waste to landfill	3	3	3	2	1	54	**3-LR**	Mass mortalities would be ensiled or taken to Interlaken.
Mort/cull disposal	Waste generation requiring disposal	Increased waste to landfill	3	2	2	2	4	96	**3-LR**	Multiple options including direct land reuse as fertiliser and or composting

ACTIVITY	ASPECT:	IMPACT:	SCALE RATING:	SEVERITY OF RATING	SENSITIVITY RATING	CONTROL RATING	PROBABILITY RATING	RISK SCORE	RISK RATING	CONTROLS
Mort/cull storage	Leaking/Spillage of organic waste	Contamination of Water	3	2	2	2	2	48	**3-LR**	Culls stored in sealed skip bins and collected within 24-48hours of culls
Mort/cull storage	Atmospheric Emissions - odour	Disturbance to the Neighbourhood/Community	3	2	2	2	1	24	**3-LR**	Culls stored in sealed skip bins and collected within 24-48hours of culls, odour is localised to bin storage area, complaints investigation process
Smolt transfer (inwards)	Leaking/spillage of fish (from truck)	Contamination of Land / Water	3	3	2	2	2	72	**3-LR**	Truck driver SOPs, includes oxygen checks and routine lid checks by driver, any onsite spills would report to WWTP and dam.
Sludge storage / removal	Leaking/Spillage of organic waste	Contamination of Water	3	3	3	2	2	108	**3-LR**	Sludge stored in sealed bins on concrete and routinely collected for land spreading. Spills would report to WWTP and dam, spill kits in/outside WWTP.
Sludge storage / removal	Atmospheric Emissions - odour	Disturbance to the Neighbourhood/Community	3	2	2	2	2	48	**3-LR**	Sludge stored in sealed bins and routinely collected for land spreading
Wastewater storage in dam	Leaking/spillage of wastewater	Contamination of Water	3	2	2	3	3	108	**3-LR**	Dam designed and inspected by engineers, quarterly groundwater and surface water monitoring, visual inspections by staff
Wastewater discharge to Net Liner	Poor wastewater quality	Contamination of Water	3	3	3	3	4	324	**2-MR**	Monthly sampling and monitoring report, daily internal sampling by staff, major upgrades to WWTP and WP2 expansion planned with new WWTP, installation of clarifier

ACTIVITY	ASPECT:	IMPACT:	SCALE RATING:	SEVERITY OF RATING	SENSITIVITY RATING	CONTROL RATING	PROBABILITY RATING	RISK SCORE	RISK RATING	CONTROLS
										and routine repairs to WWTP components.
Wastewater discharge to Net Liner - leaking liner	Poor wastewater quality	Contamination of Water	3	3	3	2	3	162	**2-MR**	Automated monitoring to temperature, salinity and depth, monthly water quality sampling

19. Continual Improvement Plan

Based on risks identified in the current environmental risk assessment, Whale Point's key focus for continual improvement is improvement of water quality from the Wastewater Treatment Plant.

Water quality from the current facility has been an ongoing issue with the current effluent discharge not always meeting the discharge limits stipulated in the environmental licence for the site. This has been driven by the inability of the current Wastewater treatment plant (WWTP) to treat effluent to a quality that meets discharge requirements.

Huon view the Whale Point Expansion project as an opportunity to rectify the effluent treatment process by the design and construction of an appropriate WWTP that will meet the set limits. Huon have engaged several water treatment specialists to design a WWTP that will guarantee the required effluent quality requirements.

In the interim, installation of a clarifier and removal of sediment building up from the dam will be undertaken to improve water quality. Previous improvements have been discussed in the Annual Environmental Management Review for 2023.

Actions and timeframes to achieve this are outlined below.

Table 22: Proposed Action Plan for improvement of water quality

Action	Timeframe
Fine tune clarifier operations to ensure the best water quality possible discharged to the cooling dam.	July 2024
Remove sediment buildup within the cooling dam during the 2024 operational shutdown.	October 2024
Approve design of new WWTP	July 2024
Lodge EIS for Whale Point Expansion Project	July 2024
WWTP Construction	July 2025
WWTP Commissioning	February 2026
WWTP Operation	July 2026

Tree inclined

Impact development at Huon Aquaculture, Port Huon, on nearby trees.

Jerry Romanski

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14 June 2024

Contents

1. Terms of reference

- This assessment of potential impact construction of a new building, road and associated infrastructure on mature trees at the Huon Aquaculture facility at Whale Point Rd, Port Huon was prepared for Sam Tucker, Director at Commercial Project Delivery.
    - Trees included in this report are limited to eucalypts with trunks ≥ 0.25m diameter at 1.4m above the ground level.
    - Conservation value of the inspected trees was not determined as part of this investigation.
    - The report indicates the current condition of the existing eucalypts that could be impacted by the proposed development and identifies individuals suitable for retention within the scope of the proposed works and subsequent utilisation of the site.

- Ground based inspection of the trees was completed on 13/06/2024.
- Drawing used for this assessment was:
  Whale Point Stage 2, 85 Whale Point Rd, Port Huon TAS. 7116, 'Site Plan - Vegetation Survey' Drw. B012, Rev. Uncontrolled (A) by Gandy and Roberts Consulting Engineers, Sandy Bay.

2. Findings summary

- The area within the scope of this study includes 59 eucalypt trees I with trunk diameter ≥0.25m at 1.4m above the ground. Generally, the trees are in poor condition.
- Removal of 41 trees would be required to achieve the proposed design.
    - This includes 24 currently dead trees.
    - Live trees nominated for removal stand within the development footprint or are in poor condition and will present an elevated risk of harm during or post build, or are expected to be adversely impacted by the build.
- Retention of 18 trees is feasible, including one dead individual unlikely to impact on the safety of site activities post development.

Figure 1. View to the south-east along the bank above the eastern section of the proposed development.

3. The proposed development

The works include construction of a new buildings, hardstands and road (Figure 2). Potentially impacted trees extend along the bank beside the southern property boundary.

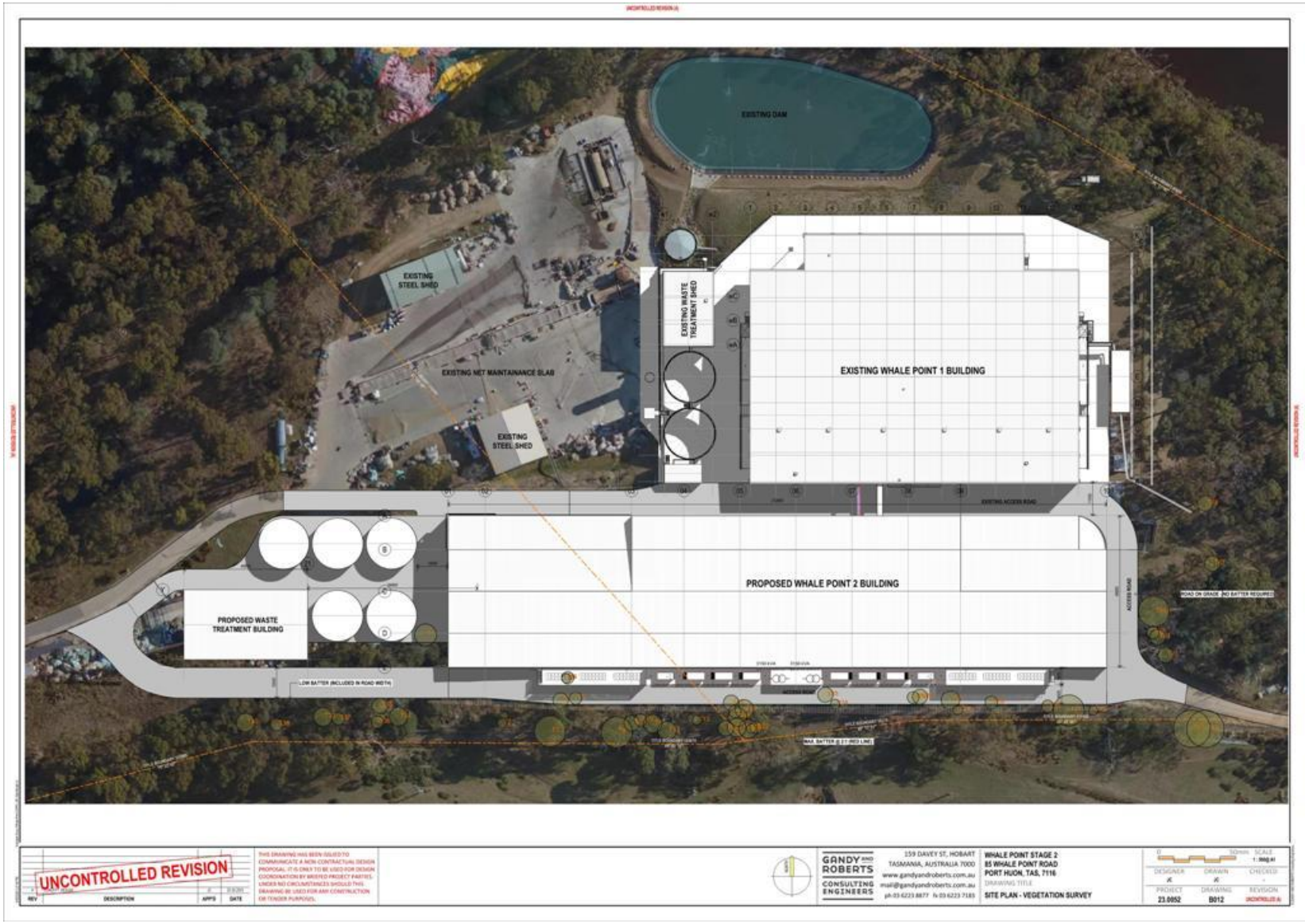


Figure 2. Site plan showing the location of nearby Gandy and Roberts.

4. Potential impact of works on nearby trees

Legend for Table 1 below.

ID - tree number in attached plans
Species - botanical name of tree
HGT - approximate tree height range (m)
DAB - trunk diameter above root flare
DBH - trunk diameter over bark at approximately 1.4m above the ground
H/S - assessment of tree health (vitality) / structure (G- good, F- fair, P- poor, Dead, Hazard)
FEATURES - key points affecting the tree's potential for maintenance within the scope of the proposed development
LIFE - expected remaining landscape life
RISK - Current risk of harm assessed with QTRA (see Attachment 1).
WORKS - suggested management actions
Enc % - the nature of encroachment and proportion of the TPZ impacted by proposed works
RET. - retention recommendation (Y – yes, to be retained; N – no, tree to be removed, ? – consider retention)
REM_REAS - reason for the removal recommendation
SRZ - theoretical structural root zone radius (m), considered essential for tree stability
TPZ - tree protection zone radius (m)*, considered essential for maintenance of tree function.

- - SRZ and TPZ dimensions were guided by AS 4970-2009, Protection of trees on development sites.

Figure 3. The trees are growing in shallow soil over dolerite and are generally in poor condition. Many are dead.

ID	SPECIES	DAB	DBH	HEIGHT	H / S		FEATURES	LIFE	RISK	WORKS	ENC %	RET.	REM_REAS	SRZ	TPZ
1	E. ovata	0.9	0.73	15-19m	G	F	Dieback on lower trunk	10-25 yrs	<1/1000000	Tree Removal	>50%	N	Incompatible with proposed development	3.2	8.8
2	E. ovata	0.43	0.37	10-14m	G	G	Minor or none noticed	25-50 yrs	<1/1000000	No works required		Y		2.3	4.4
3	E. ovata	1.16	1.00	20-24m	G	G	Large dead branches	25-50 yrs	<1/1000000	Consider deadwooding	Road and batter / 15%	Y		3.5	12.0
4	E. ovata	0.65	0.54	20-24m	P	F	Epicormic crown, Large dead branches	10-25 yrs	<1/1000000	Tree Removal	>50%	N	Within footprint of proposed road	2.8	6.5
5	E. ovata	0.38	0.30	10-14m	G	G	Minor or none noticed	10-25 yrs	<1/1000000	Tree Removal	>50%	N	Within footprint of proposed road	2.2	3.6
6	E. ovata	0.45	0.44	10-14m	Dead	P	Large dead branches	<10 yrs	<1/1000000	Tree Removal	>50%	N	Within footprint of proposed road	2.4	5.3
7	E. ovata	0.45	0.40	20-24m	P	F	Large bark wound on lower trunk, Large dead branches	<10 yrs	<1/1000000	Tree Removal	>50%	N	Within footprint of proposed road	2.4	4.8
8	E. ovata	0.95	0.95	10-14m	P	F	Decay in base of trunk, Large dead branches	10-25 yrs	<1/1000000	Consider deadwooding	Road and batter / 15%	Y		3.2	11.4
9	E. ovata	0.67	0.53	20-24m	P	F	Leans heavily toward road, in advanced decline.	<10 yrs	<1/1000000	Tree Removal		N	Poor health & structure	2.8	6.4
10	E. ovata	0.52	0.45	10-14m	F	P	Moderate size dead branches, Large bark wound on lower trunk	10-25 yrs	<1/1000000	Tree Removal	Road and batter / 19%	N	Excessive root damage expected	2.5	5.4

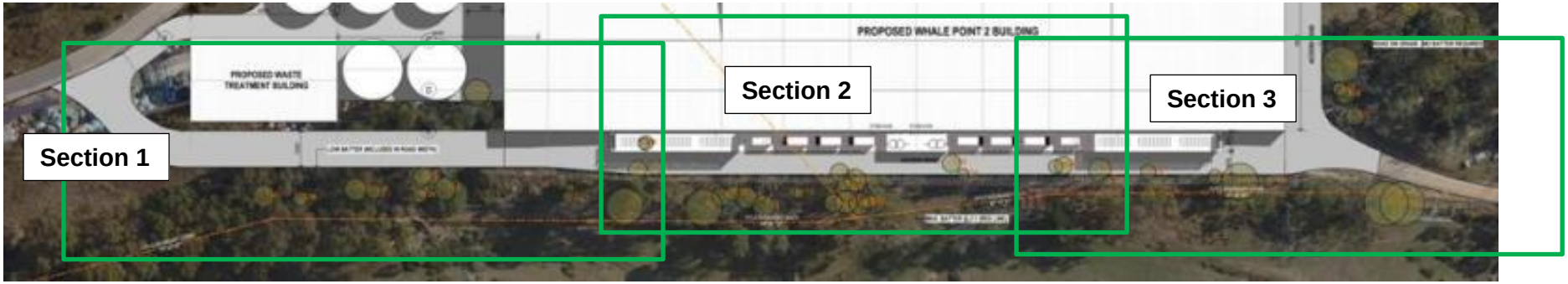
ID	SPECIES	DAB	DBH	HEIGHT	H / S		FEATURES	LIFE	RISK	WORKS	ENC %	RET.	REM_REAS	SRZ	TPZ
11	E. ovata	0.76	0.56	15-19m	P	P	Decay in base of trunk - leans to NW. Original crown has died - some epicormics on mid-trunk only, Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Poor health & structure	2.9	6.7
12	E. ovata	0.68	0.58	10-14m	Dead	P	Minor or none noticed	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.8	7.0
13	E. ovata	0.43	0.35	15-19m	P	F	Minor or none noticed	10-25 yrs	<1/1000000	No works required	Road and batter / 11%	Y		2.3	4.2
14	E. obliqua	0.78	0.64	25-29m	F	F	Twin-leader	10-25 yrs	<1/1000000	No works required	Road and batter / 11%	Y		3.0	7.7
15	E. ovata	0.83	0.83	20-24m	P	P	Decay in base and mid trunk, Large dead branches	<10 yrs	<1/1000000	Tree Removal	Road and batter / 20%	N	Poor health & structure	3.1	10.0
16	E. ovata	1.2	0.72	10-14m	G	P	Twin leader, base burnt out. Head broken out, heavy lean to NE and NW.	10-25 yrs	<1/1000000	Tree Removal		N	Poor health & structure	3.6	8.6
17	E. obliqua	0.28	0.25	10-14m	Dead	F	Minor or none noticed	<10 yrs	<1/1000000	Tree Removal		N	Dead	1.9	3.0
18	E. ovata	0.58	0.50	10-14m	P	P	Historic storm damage and decay in lower trunk. Leans to NE over road, Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Defective structure & poor form	2.6	6.0
19	E. ovata	0.77	0.71	20-24m	F	P	Large bark wound on lower trunk. Leans to NE. Moderate size dead wood.	10-25 yrs	<1/1000000	No works required	>50%	N	Within footprint of proposed road	3.0	8.5
20	E. ovata	0.84	0.68	25-29m	G	P	Decay in lower trunk - ants	10-25 yrs	<1/1000000	No works required	Road and batter / 12%	Y		3.1	8.2

ID	SPECIES	DAB	DBH	HEIGHT	H / S		FEATURES	LIFE	RISK	WORKS	ENC %	RET.	REM_REAS	SRZ	TPZ
21	E. ovata	0.34	0.29	10-14m	P	F	Minor or none noticed	10-25 yrs	<1/1000000	No works required		Y		2.1	3.5
22	E. ovata	0.53	0.40	10-14m	Dead	P	Leans over fence. Large dead branches, hanger	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.5	4.8
23	E. ovata	0.62	0.50	10-14m	Dead	P	Leans from shoulder of bank over road.	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.7	6.0
24	E. ovata	0.37	0.31	10-14m	Dead	P	Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.2	3.7
25	E. ovata	0.62	0.55	15-19m	Dead	F	Main leader has died, Large dead branches over road	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.7	6.6
26	E. ovata	0.67	0.58	15-19m	F	P	Historic storm damage - large wound on mid-trunk. Head in decline.	10-25 yrs	<1/1000000	No works required	>50%	N	Within footprint of proposed road	2.8	7.0
27	E. ovata	0.68	0.57	20-24m	Dead	Hazard	Twin-leader, burnt out base, decay. Leans over road	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.8	6.8
28	E. ovata	0.48	0.38	20-24m	Dead	P	Minor or none noticed	10-25 yrs	<1/1000000	Tree Removal		N	Dead	2.4	4.6
29	E. ovata	0.57	0.45	15-19m	P	P	Decay in base of trunk, nearly dead	<10 yrs	<1/1000000	Tree Removal		N	Poor health & structure	2.6	5.4
30	E. ovata	0.58	0.49	10-14m	Dead	P	Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.6	5.9
31	E. ovata	1.08	0.76	10-14m	P	P	Decay in base. Western leader has died, eastern leader leans over road, head has died, Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Poor health & structure	3.4	9.1
32	E. ovata	0.29	0.25	10-14m	Dead	P	Large dead branches, hanger	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.0	3.0
33	E. ovata	0.88	0.77	10-14m	F	G	Large dead branches	10-25 yrs	<1/1000000	No works required	Road and batter / 13%	Y		3.1	9.2

ID	SPECIES	DAB	DBH	HEIGHT	H / S		FEATURES	LIFE	RISK	WORKS	ENC %	RET.	REM_REAS	SRZ	TPZ
34	E. ovata	0.78	0.72	15-19m	Dead	P	Decay in lower trunk - burnt out base, head leans toward road	<10 yrs	<1/1000000	Tree Removal		N	Defective structure	3.0	8.6
35	E. ovata	0.72	0.62	10-14m	Dead	P	Decay in base of trunk	<10 yrs	<1/1000000	Remove tree		N	Dead	2.9	7.4
36	E. ovata	0.59	0.50	10-14m	G	G	Minor or none noticed	10-25 yrs	<1/1000000	No works required		Y		2.7	6.0
37	E. ovata	0.38	0.32	10-14m	Dead	P	Minor or none noticed	10-25 yrs	<1/1000000	Tree Removal		N	Dead	2.2	3.8
39	E. ovata	0.46	0.40	10-14m	Dead	P	Minor or none noticed	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.4	4.8
40	E. ovata	1.26	0.87	10-14m	G	G	Twin-leader, Large dead branches	10-25 yrs	<1/1000000	No works required		Y		3.6	10.4
41	E. ovata	1.13	0.95	15-19m	Dead	Hazard	Twin-leader. Extensive decay in trunk, leans over road.	<10 yrs	1/40000	Tree Removal		N	Failure likely	3.5	11.4
42	E. ovata	0.7	0.60	10-14m	Dead	Hazard	Dead, leans over road.	<10 yrs	1/1000000	Tree Removal		N	Dead	2.8	7.2
43	E. ovata	0.57	0.50	10-14m	Dead	Hazard	Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.6	6.0
44	E. ovata	0.5	0.52	10-14m	Dead	P	Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.5	6.2
45	E. ovata	0.46	0.40	10-14m	P	F	Thin crown, Large dead branches - in decline	<10 yrs	<1/1000000	No works required		Y		2.4	4.8
46	E. ovata	0.78	0.65	15-19m	Dead	Hazard	Twin-leader, Extensive decay in base	<10 yrs	<1/1000000	Tree Removal		N	Dead	3.0	7.8
47	E. ovata	0.69	0.50	10-14m	F	F	Low volume of decay in base. Historic excavation to north of trunk. Large dead branches	10-25 yrs	<1/1000000	No works required		Y		2.8	6.0
48	E. ovata	0.74	0.63	15-19m	F	G	Historic overfill above southern side of root zone. Large dead branches	10-25 yrs	<1/1000000	No works required		Y		2.9	7.6

ID	SPECIES	DAB	DBH	HEIGHT	H / S		FEATURES	LIFE	RISK	WORKS	ENC %	RET.	REM_REAS	SRZ	TPZ
49	E. ovata	0.46	0.40	10-14m	Dead	P	Minor or none noticed	<10 yrs	<1/1000000	Could be retained for habitat or removed		?		2.4	4.8
50	E. ovata	1.12	0.74	15-19m	F	P	Twin-leader, decay in base of trunk, leans east.	10-25 yrs	<1/1000000	No works required		Y		3.5	8.9
51	E. ovata	0.39	0.30	15-19m	F	F	Minor or none noticed	10-25 yrs	<1/1000000	Tree Removal		N	Inappropriate location	2.2	3.6
52	E. ovata	0.5	0.40	15-19m	F	F	Minor or none noticed	10-25 yrs	<1/1000000	Tree Removal		N	Inappropriate location	2.5	4.8
53	E. ovata	0.74	0.66	20-24m	G	F	Large dead branches	25-50 yrs	<1/1000000	No works required	Road and batter / 12%	Y		2.9	7.9
54	E. ovata	0.39	0.31	15-19m	Dead	Hazard	Leans toward road	<10 yrs	1/1000000	Tree Removal		N	Dead	2.2	3.7
55	E. ovata	1	0.77	15-19m	Dead	Hazard	Extensive decay in base - leans to NE, Large dead branches	<10 yrs	1/400000	Tree Removal		N	Dead	3.3	9.2
56	E. ovata	0.65	0.58	20-24m	P	P	Nearly dead, a few epicormics only, Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Poor health & structure	2.8	7.0
57	E. ovata	0.76	0.69	15-19m	F	F	Minor or none noticed	10-25 yrs	<1/1000000	No works required	Existing road, potential excavation for electrical conduit - recommend excavation outside of TPZ	Y		2.9	8.3
58	E. ovata	0.72	0.58	15-19m	F	P	Bark lesion and decay in mid-trunk, leans away from the road, Moderate size dead branches	10-25 yrs	<1/1000000	No works required		Y		2.9	7.0
59	E. ovata	0.43	0.38	10-14m	Dead	P	Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.3	4.6
60	E. ovata	0.55	0.48	15-19m	Dead	P	Large dead branches	<10 yrs	<1/1000000	Tree Removal		N	Dead	2.6	5.8

5. Location of inspected trees



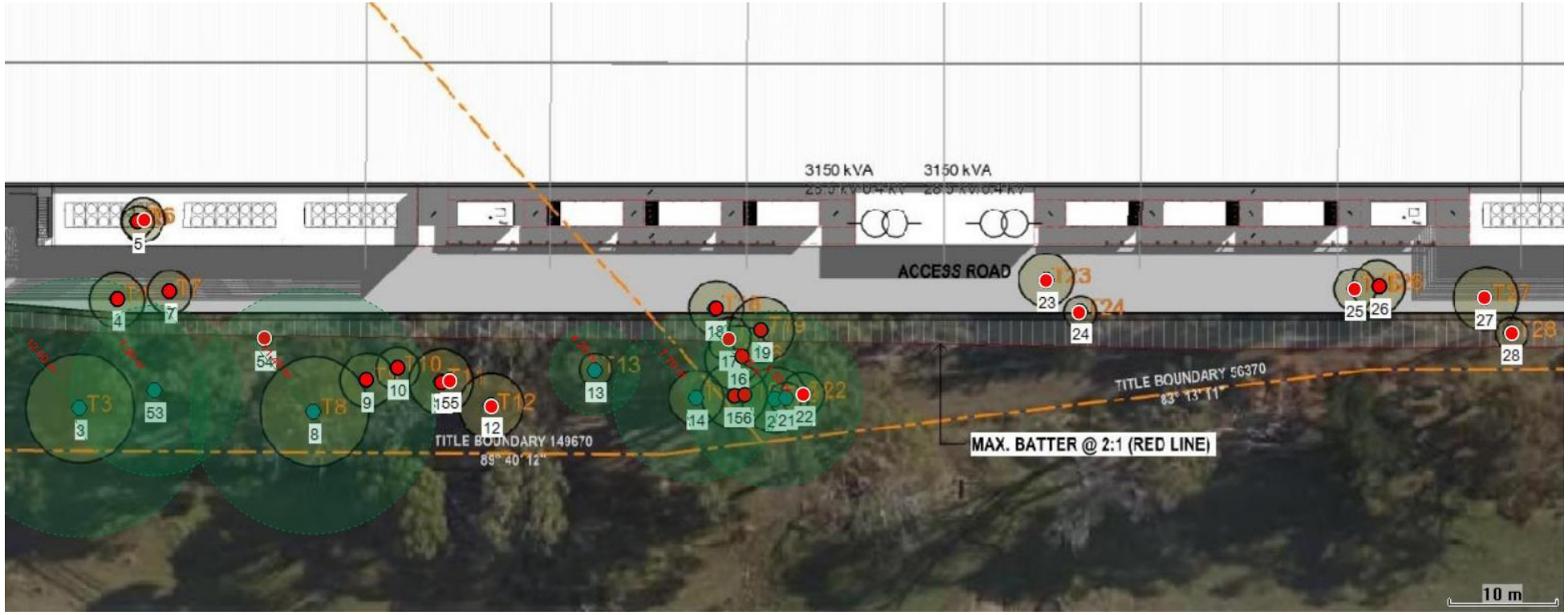
Plan markup symbology:

- Tree to be retained
- Tree to be removed
- Dead tree to be removed
- Dead tree that could be retained
- TPZ

Section 1


PROPOSED WASTE
TREATMENT BUILDING
D
E
Z
T1
1
51
52
10000
LOW BATTER (INCLUDED IN ROAD WIDTH)
5
4
T35
35
T34
34
T36
36
T38
33
T37
37
T40
40
T39
39
50
49
T2
2
T3
3
53
10 m

Section 2


3150 kVA
3150 kVA
ACCESS ROAD
TITLE BOUNDARY 149670
89° 40' 12"
TITLE BOUNDARY 56370
MAX. BATTER @ 2:1 (RED LINE)
10 m

Section 3


EXISTING ACCESS ROAD
BUILDING
ACCESS ROAD
ROAD ON GRADE - NO BATTER REQUIRED
48
47
46
45
44
43
60
59
25
26
27
28
29
30
31
32
41
42
58
10 m

6. Tree protection measures

- There is adequate scope for establishment of standard tree protection zones / combined tree protection areas around trees nominated for retention.

- The TPZ's should be clearly marked and include signs identifying the areas as "Tree Protection Zone" and exclude:
    - excavation,
    - movement by machinery,
    - storage or disposal of building materials.

- Removal of trees should not employ heavy machinery over the TPZs of trees to be retained. Tree removal must avoid damage to crowns and trunks of trees to be retained.

- Pruning / deadwooding of retained trees should be completed by qualified arborists (minimum AQF Level 3).

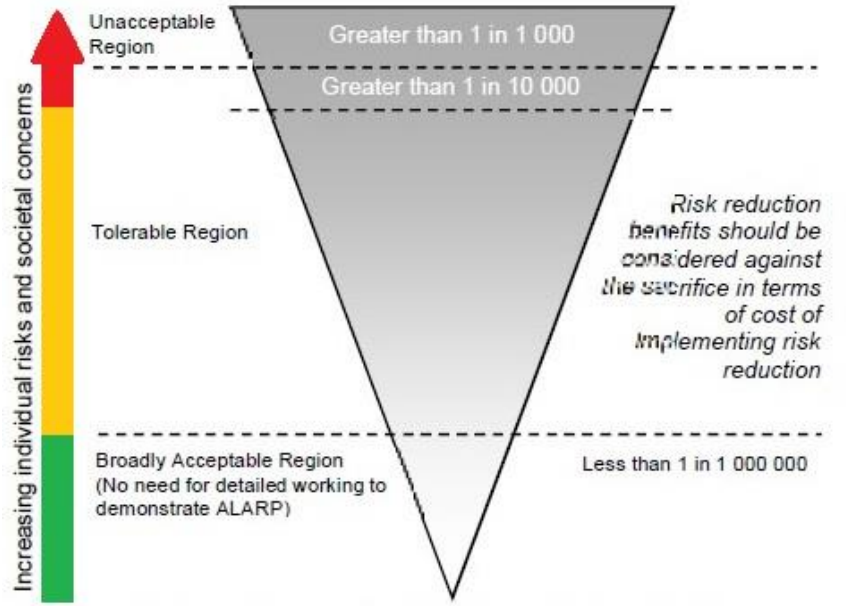
- It is possible that access to areas nominated as TPZs may be required during the build. Seek further advice from an arborist about minimisation of impact by unavoidable activities within the TPZs.

- Large roots (≥ 50mm in diameter) may be exposed during batter formation above the proposed road. Identification of parent trees will not be possible - all large roots must be cleanly cut with a saw and not left torn by machinery.

Attachment 1 QTRA

Quantified Tree Risk Assessment, Version 5.2 http://www.qtra.co.uk/

The method provides an assessment of risk of serious injury or death from falling trees or tree sections and considers the presence and value of targets, the size of the part most likely to fail and the probability of failure. Each is expressed as a probability, with the final output – Risk of Harm – again expressed as a probability. The final RoH scores are aligned with widely accepted advisory thresholds to assist risk decision making.



Adapted from the Tolerability of Risk framework
(HSE 2001 - http://www.hse.gov.uk/risk/theory/r2p2.pdf)

Note:

- RoH greater than 1 in 10,000 is not acceptable when imposed on others, but could be tolerated upon the agreement of the stakeholders

- Risks within the Tolerable range need to be evaluated against the "As Low As Reasonably Practical" test (ALARP) that considers risks and benefits associated with the tree and its maintenance needs and indicates a proportionate level of investment for reduction of a given risk. The formula below assists determination of the value of reasonable or proportionate level of investment in maintenance:

VSL / QTRA index = Proportionate investment ($)

VSL	- Value of Statistical Life ($5.3 million)
QTRA index	- eg. RoH of 1 in 500,000 = QTRA index 500,000

If addressing the risk requires input considerably greater than the derived proportionate investment, the risk is considered ALARP and Tolerable.

Marine SOLUTIONS TASMANIA PTY LTD

www.marinesolutions.net.au

WHALE POINT MARINE NATURAL VALUES ASSESSMENT

Port Huon, Tasmania

prepared for

Huon Aquaculture

January 2025

Table of contents

Version	Contributor/s	Date reviewed	Reviewed by	Notes
1	L. Harrison		I.Thomas	
2				

Cover photo: Port Huon Wharf, Port Huon, Tasmania (Marine Solutions, 2007)

Executive summary

A marine natural values assessment (NVA) was conducted to explore the surrounding environment of the Whale Point facility held by Huon Aquaculture. The NVA characterised natural marine ecological values in the adjacent marine environment of the Australian Paper Manufacturing (APM) wharf site. It is Marine Solutions' understanding that there are three salmon loading pens at the end of the wharf and the facility is connected to the Whale Point Nursery operations facilitated by Huon Aquaculture.

The NVA involved an initial desktop assessment of natural values, followed by field surveys, including bathymetry mapping and intertidal and underwater subtidal surveys.

The substratum in the footprint of the Whale Point facility consists of predominantly fine sand with moderate levels of bioturbation in the form of holes, likely belonging to small crustaceans. The predominantly sandy habitat was interrupted in places by patches of small cobbles and shell debris. The introduced New Zealand common cushion star and northern Pacific sea star dominated the benthic faunal community, along with a moderate density of sand gobies. No handfish were observed in the area.

The intertidal habitat on the existing reclamation comprises angular boulders and cobbles, and the natural intertidal habitat consists of small angular cobbles on sand/gravel. No threatened seastars were observed during the intertidal survey. Indeed, few animals were observed, with the exception of moderate numbers of the gold-mouthed conniwink.

The presence of threatened or endangered marine species or communities in the waters surrounding the Whale Point facility is highly unlikely.

1 Introduction

1.1 Proposal brief

Marine Solutions was engaged by Huon Aquaculture to undertake a marine natural values assessment of the environment surrounding the pen loading facility at Whale Point, Port Huon (Figure 1). The purpose of this report is to summarise the findings of the desktop assessment and field surveys and outline sensitive receptors in the marine environment at the Whale Point salmon pen loading facility.

2 Project background

2.1 Scope

The scope of this report includes a detailed summary of available information regarding natural values and ecology of the area. The scope of the project does not extend to terrestrial, freshwater or avian species.

Specifically, the project included the following components:

- Natural Values Assessment
- Bathymetric survey and data processing
- Remotely Operated Vessel (ROV) surveys
    - Benthic habitat characterisation
    - Handfish survey
- Intertidal survey

2.2 Study area

Port Huon is situated within the local government area of Huon Valley along the Huon River (Figure 1). Flowing into Port Huon is the Kermandie River which flows through the south of Geeveston, past the Geeveston sewage treatment plant (STP) and discharges into Hospital Bay and the Huon River. Hospital Bay is an area used for recreational boating and fishing, with a small region of the bay zoned as a marine farming zone (LISTmap, 2024). Adjacent to Hospital Bay is a salmon nursery run by Huon Aquaculture and further downstream within the Huon River are several areas with marine farming licenses for finfish and shellfish.

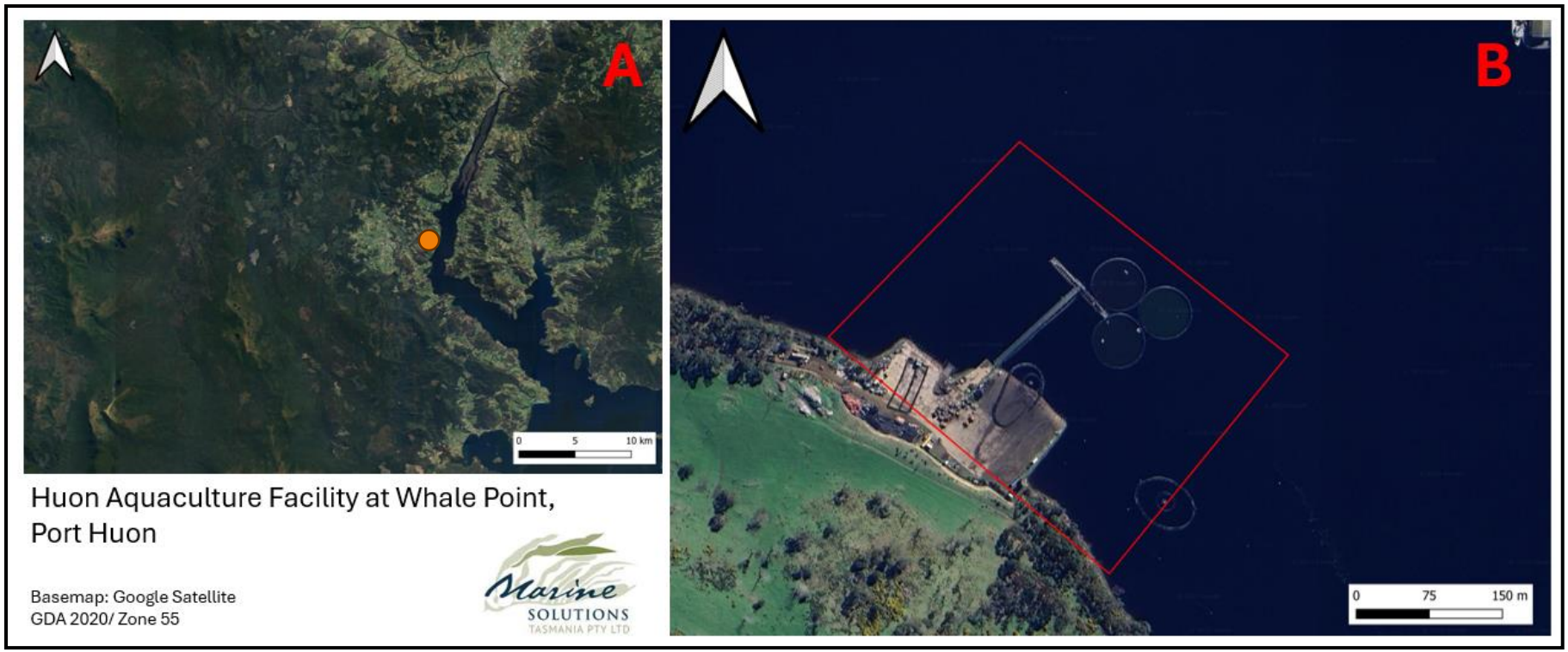


Figure 1. Footprint of the ecological assessment site. A) Zoomed out to outline location of Port Huon in the Huon River, southwest Tasmania. B) Site footprint for ecological assessment of marine natural values.

3 Desktop-based assessment

A desktop review of natural values was conducted, in accordance with current guidelines, to identify natural values in the vicinity of the study area (NCH 2020). The guidelines are used to determine targeted surveys required to appropriately assess natural values.

3.1 Tasmanian Government Natural Values Report

A Natural Values Report was compiled using the Tasmanian Government's online Natural Values Atlas tool (NRE Tas, 2024). The tool utilises several data sets to provide a resource that can be used for desktop reviews of natural values for specific areas around Tasmania. The Natural Values Atlas tool was used to identify protected matters relating to a 500 m and a 5,000 m buffer zone surrounding the study area (NRE Tas, 2024). The full report is available upon request from Marine Solutions. Threatened and protected marine species identified in the report are further discussed and listed in 3.3 and Table 2.

3.2 EPBC Act Protected Matters report

The *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* Protected Matters Search Tool (PMST) is a tool managed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to help determine whether Matters of National Environmental Significance (MNES) or other matters protected by the *EPBC Act* are likely to occur in a given area of interest (DCCEEW, 2024). The PMST was used to identify protected matters relating to the study area, with a buffer of 5,000 m (**Error! Reference source not found.**, Table 2). The full report is available upon request from Marine Solutions.

Table 1 Summary of findings of the *EPBC Act* PMST within 5,000 m.

	Item	# ID'd by PMST	Notes
Matters of National Environmental Significance	World Heritage Properties	0	
	National Heritage Places	0	
	Wetlands of International Importance	0	
	Great Barrier Reef Marine Park	0	
	Commonwealth Marine Area	0	
	Listed Threatened Ecological Communities	4	Includes 2 marine ecological communities; refer to Section 3.3.4
	Listed Threatened Species	55	Includes 9 marine species; refer to Section 3.3.
	Listed Migratory Species	33	Includes 5 marine cetaceans and elasmobranchs, the remainder are avian species.
Other Matters Protected by EPBCA	Commonwealth Land	0	
	Commonwealth Heritage Places	0	
	Listed Marine Species	51	Includes 13 fish species and 9 marine mammals, the remainder are avian species.
	Whales and Other Cetaceans	7	Refer to Section 3.3.1
	Critical Habitats	0	
	Commonwealth Reserves Terrestrial	0	
	Australian Marine Parks	0	
	Habitat Critical to the Survival of Marine Turtles	0	
Extra Information	State and Territory Reserves	2	
	Regional Forest Agreements	1	
	Nationally Important Wetlands	0	
	EPBC Act Referrals	1	
	Key Ecological Features (Marine)	0	
	Biologically Important Areas	5	
	Bioregional Assessments	0	

	Item	# ID'd by PMST	Notes
	Geological and Bioregional Assessments	0	

3.3 Threatened and protected species and ecological communities

There are a number of marine species listed as threatened that may occur in the vicinity of the study area. Threatened species are protected under the *Threatened Species Protection* (*TSP*) *Act 1995* (Tasmanian state legislation) and/or the *Environment Protection and Biodiversity Conservation Act (EPBC Act) 1999* (Australian Government legislation). Under the *TSP Act 1995*, no listed species is allowed to be collected, disturbed, damaged or destroyed without a permit. Under the *EPBC Act 1999*, any action with significant impact on a listed threatened species and/or community is prohibited without approval (Section 18 and 18A).

In addition to threatened species legislation, the *Fisheries (General and Fees) Regulations 2006* under the *Living Marine Resources Management Act 1995* (LMRMA) prohibits the taking/possession of a number of marine species, including syngnathids (seahorses, seadragons and pipehorses), handfish, threefin blennies, limpets/false limpets of three superfamilies, and five species of shark. Additional species are protected by the schedules of the *Wildlife (General) Regulations 2010* (Regulations under the *Nature Conservation Act 2002*), under which a person must not take, buy, sell or have possession of any protected wildlife or any product of any protected wildlife without a permit.

In a search of the Natural Values Atlas (NRE Tas 2024a) and EPBC PMST (DCCEEW 2024), two threatened marine ecological communities and ten threatened marine species were identified as possibly occurring in the area or known to occur in the area (Table 2). No verified records of threatened marine species were found within a 500 m radius of the study area (NRE Tas 2024a).

Table 2. Summary of threatened marine species identified in a search of the Natural Values Atlas and the EPBC PMST (500 m and 5,000 m buffer zones). Note that the scope does not extend to terrestrial, freshwater or avian biota.

	Species/ Community	Listing		EPBC PMST findings	NVA findings
		EPBC Act	TSP Act		
Marine Mammals	Blue whale (*Balaenoptera musculus*)	Endangered	Endangered	Species or species habitat likely to occur within 500 m	
	Southern elephant seal (*Mirounga leonine*)	Vulnerable	Endangered		Verified record within 5,000 m
	Southern right whale (*Eubalaena australis*)	Endangered	Endangered	Breeding known to occur within 500 m	Verified record within 5,000 m
Fish/elasmobranchs	Great white shark (*Carcharodon carcharia*)	Vulnerable	Vulnerable	Species or species habitat known to occur within 500 m	
	School shark (*Galeorhinus galeus*)	Conservation dependant	N/A	Species or species habitat may occur within 5,000 m	
	Southern bluefin tuna (*Thunnus maccoyii*)	Conservation dependant	N/A	Species or species habitat likely to occur within 500 m	
	Australian grayling (*Prototroctes maraena*)	Vulnerable	Vulnerable	Species or species habitat likely to occur within 500 m, known to occur within 5,000 m	May occur within 500 m (based on range boundaries)
	Red handfish (*Thymichthys politus*)	Critically endangered	Endangered	Species or species habitat may occur within 500 m	
	Spotted handfish (*Brachionichthys hirsutus*)	Critically endangered	Endangered	Species or species habitat may occur within 5,000 m	May occur within 5,000 m (based on range boundaries)

Invertebrates	Tasmanian live-bearing sea star (*Parvulastra vivipara*)	Vulnerable	Endangered	Species or species habitat may occur within 500 m
Communities	Giant kelp marine forests of South East Australia	Endangered	N/A	Community may occur within 5,000 m
	Subtropical and temperate coastal saltmarsh	Vulnerable	N/A	Community likely to occur within 5,000 m

3.3.1 Threatened marine mammals

Cetaceans (whales and dolphins) and pinnipeds (seals) may occur near Port Huon periodically. Southern right whales (*Eubalaena australis*) migrate along coastal routes past Tasmania, and may occur near shore, especially during breeding season (NRE Tas 2020). Southern elephant seals are generally found on Macquarie Island, however vagrant individuals have been known to reach the beaches of Tasmania and mainland Australia. In Tasmania, an average of twelve elephant seals are reported each year (NRE Tas 2023). Waters around Tasmania are possible foraging areas within blue whale's migratory route. Although it is thought that blue whales are more likely to migrate along the west coast of Tasmania to aggregate in the Bonney Upwelling (between Cape Otway, Victoria and Robe, South Australia) (Department of the Environment 2025a).

Threats to marine mammals include acoustic pollution, entanglement (e.g., marine debris, fishing equipment), ship-strike injury and water quality degradation. Marine mammals, particularly cetaceans, use acoustic signals for detecting prey, navigating and communication. Acoustic pollution can significantly impact these species directly through auditory injury, masking of important natural sounds, inducing behavioural changes or inducing stress, and impacts on larvae or prey species may also indirectly affect marine mammals (Erbe 2012). These animals are highly mobile and likely to remove themselves from unpleasant stimuli whenever possible.

3.3.2 Threatened fish

With the exception of handfish (see Section 3.3.2.1), threatened fish species identified in the desktop study (Australian grayling and Southern bluefin tuna) are migratory and/or highly mobile and unlikely to persist in the area for long enough to be negatively impacted by external contraventions. The Whale Point facility is not situated in any key migration pathways, and the waterway is wide enough that potentially impacted areas can be circumvented.

The main threat to the Australian grayling (*Prototroctes maraena*) is the construction of dams and weirs restricting migration to and from the sea (Threatened Species Scientific Committee 2021). Exposure to high concentrations of suspended sediment for an extended period could potentially affect young grayling returning to rivers for their adult life.

Southern bluefin tuna (*Thunnus maccoyii*) is a pelagic species and not likely to occur in the study area. The main process threatening this species is overfishing (Threatened Species Scientific Committee 2010).

The eastern school shark (*Galeorhinus galeus*) is primarily a deep-water demersal species found in temperate waters of southern Australia. In Tasmania, inshore bays and estuaries are important as birthing and nursery sites. Threats to school sharks include fishing and habitat degradation of nursery grounds (Department of the Environment (2025b). The Huon River in the vicinity of the Port Huon study area is a Shark Refuge Area, where fishing of shark species is not allowed, as the area is recognised as important breeding habitat (NRE Tas 2024b).

Great white sharks (*Carcharodon carcharias*) are a primarily oceanic species and as such it is unlikely that this species will occur in the proximity of the study area. The key process threatening great white sharks is commercial fishing (DSEWPC 2013).

3.3.2.1 Handfish

Handfish are small, slow moving benthic fish found only in southeastern Tasmania (DCCEEW 2015). Handfish species have suffered from a serious decline in distribution and abundance coinciding with

the introduction of the northern Pacific sea star (Pogonoski *et al*. 2002; Bruce *et al*. 1999). Remaining individuals today exist in fragmented sub-populations within the species' historic range (Last and Gledhill 2009). A number of anthropogenic development activities can impact handfish populations, including activities that alter turbidity, water and sediment quality (TSSC 2012).

Known, modern red handfish populations are limited to only two small locations in Fredrick Henry Bay (Bessel *et al*. 2024). It is considered that the likelihood of their presence in the vicinity of the study area is extremely low.

There are no confirmed sightings of spotted handfish near the study area. The closest verified sighting is in Flathead Bay approximately 17.5 km from Port Huon. It is therefore highly unlikely that spotted handfish will be present in the area.

Refer to Section 5.2.5 for results of handfish surveys.

3.3.3 Threatened invertebrates

The Tasmanian live-bearing sea star (*Parvulastra vivipara*, formerly *Patiriella vivipara*) is a small (~ 15 mm diameter) pentagonal orange sea star endemic to south-east Tasmania. The population is severely fragmented. Thirteen distinct, small and isolated sub-populations are known, however at least two of these are thought to have become locally extinct (Prestedge 2001). Known populations exist within the D'Entrecasteaux Channel at Woodbridge and Lunawanna. No populations are known within the Huon River (Department of the Environment 2025c). Recognised threats to the species include competition with and predation by the introduced northern Pacific sea star (*Asterias amurensis*), and habitat modification and destruction including sewage discharge and urban encroachment.

3.3.4 Threatened ecological communities

3.3.4.1 Giant kelp marine forests of southeast Australia

Giant kelp forests of south east Australia were added to federal legislation as a threatened ecological community in August 2012. The progressive decline of these forests has been the most noticeable in Tasmanian waters and is attributed to changing oceanographic conditions, including rising sea surface temperatures and changes to the East Australian Current (DSEWPC 2012). Giant kelp (*Macrocystis pyrifera*) grows on rocky reefs in cold temperate waters off south-east Australia. The vertical structure provided by giant kelp forests increases local biodiversity by creating habitat for numerous marine species (DSEWPC 2012).

The closest known giant kelp community is near the mouth of the Huon River, approximately 14 km away (LISTmap *Giant kelp aerial survey 2019*). Therefore, it is unlikely that a giant kelp community exists within the vicinity of the study area.

3.3.4.2 Subtropical and temperate coastal saltmarsh

Subtropical and Temperate Coastal Saltmarsh communities occur in a narrow margin along the Australian coastline ranging from southern Queensland down to Tasmania and southern Western Australia. Coastal saltmarshes provide critical ecological values that support a range of ecosystem services due to their link between terrestrial and marine environments (Prahalad and Pearson 2013). Associated threats to coastal saltmarshes include clearing, altered hydrogeology, invasive species, climate change and eutrophication. The conservation advice under the *EPBC Act 1999* recommends managing pollution and eutrophication, and avoiding constructing stormwater and effluent near or into a saltmarsh (Department of the Environment 2025d).

The closest identifiable coastal saltmarsh community is located at the mouth of the Kermandie River, around 3 km from the study area (Figure 2). The species occurs at the high intertidal area.

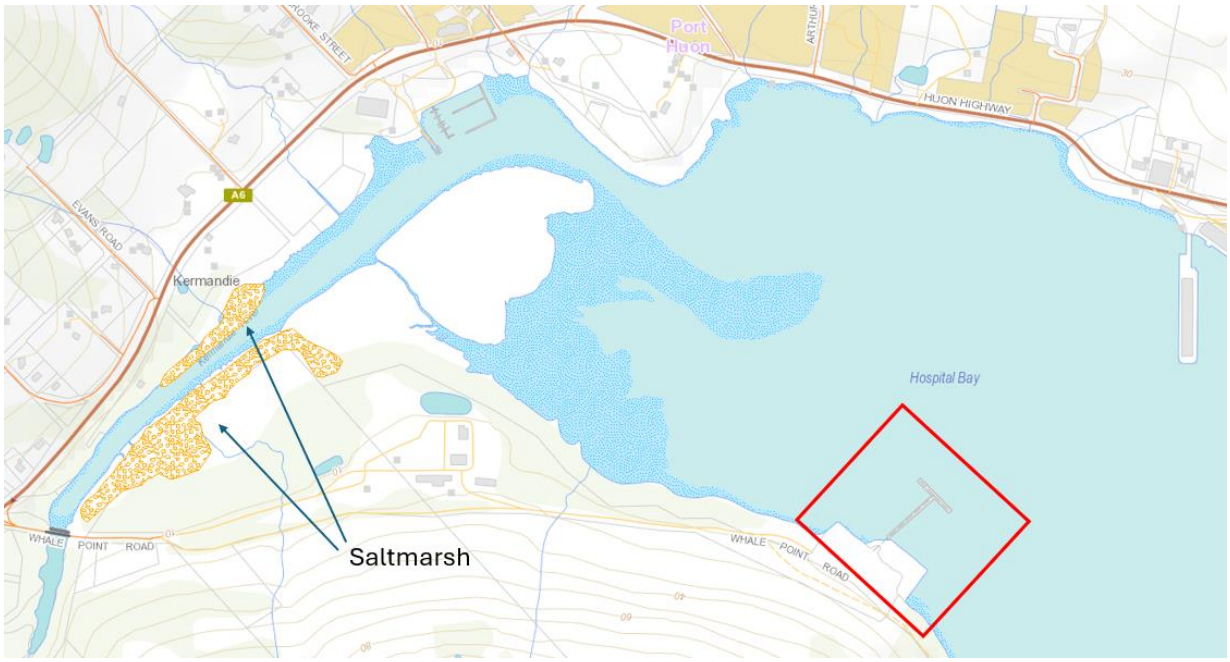


Figure 2. Saltmarsh communities in the vicinity of the Whale Point facility. Source: LISTmap.

3.4 Other sensitive receptors

3.4.1 Seagrass

Isolated strands of seagrass (likely *Heterozostera tasmanica*) were observed in the survey area. Surveys of marine habitats conducted by SeaMap Tasmania have not however observed any significant beds of seagrass in the area (Figure 3).

Figure 3. Map of benthic habitats. Source: SeaMap Tasmania (via LISTmap).

3.4.2 Aquaculture

The nearest aquaculture zone to the study area is in the middle of Hospital Bay, however this does not contain an active lease (Figure 4). The nearest active lease is Brabazon Park, operated by Tassal, located approximately two kilometres southwest of the site footprint.

Figure 4. Marine farming zones (green outline) and leases (dark blue polygons) in proximity of the study area (source: LISTmap). The study area is indicated by a the red circle.

3.5 Invasive species

Marine pests are introduced into Australian waters and translocated by a variety of vectors such as through ballast water, biofouling, aquaculture operations, and ocean current movements. Once introduced, they often thrive as many may lack predators and/or competitors in their new environment (Whitehead 2008). Pests can have a significant impact on human health, fisheries and aquaculture, infrastructure, tourism, biodiversity, and ecosystem health.

Seven species have been declared as pests under the *Living Marine Resources Management Act 1995*. These are:

- Northern Pacific sea star (*Asterias amurensis*),
- European shore crab (*Carcinus maenas*),
- Giant fan worm (*Sabella spallanzanii*),
- Japanese wakame (*Undaria pinnatifida*),

- Black striped mussel (*Mytilopsis sallei*),
- Green algae (*Caulerpa taxifolia*).

Many more are recognised as pests by the National Introduced Marine Pest Information System (Commonwealth of Australia 2021).

Several introduced marine species were observed within the study area during the subtidal surveys (Table 3), the most common of which was the New Zealand common cushion star and northern Pacific sea star. Refer to Section 5.1 and 0 for further information.

Table 3. Non-native species observed in the footprint of the Whale Point facility from intertidal and subtidal surveys.

Common name	Species name	Abundance
New Zealand common cushion star	*Patiriella regularis*	High abundance in subtidal area
Northern Pacific sea star	*Asterias amurensis*	Moderate abundance in subtidal area
Pacific oyster	*Crassostrea gigas*	Low abundance in intertidal and subtidal areas
Variable triplefin (fish)	*Forsterygion varium*	Single individual in subtidal area

The presence of introduced species should be considered in the context of equipment and machinery movement between the study area and other locations to mitigate the risk of spreading any introduced species.

4 Bathymetric survey

4.1.1 Methods

A bathymetric survey was conducted on 7th June 2024 using a CHIRP-enabled broadband sounder Garmin EchoMAP plotter, logging GPS positions and water depth each second. This data is logged at a resolution such that it can be interpolated to produce an accurate bathymetric map of the study

area within the requirements of the Australian Hydrographic Service. Depths were measured to the nearest 10 cm, and tidally and barometrically corrected for Australian Height Datum and Chart Datum using tide charts and observations from the Bureau of Meteorology. The resultant files were interpolated using GIS software to create a bathymetric map of the area displaying 0.1 m contours (isobaths).

4.1.2 Results

Bathymetry indicated gradual and consistent slopes throughout most of the study area, reaching to a maximum depth of around -5 m below chart datum (CD) in the northwest corner (Figure 5). The deepest point in the eastern section of the footprint at around -4.5 m CD (Figure 6).

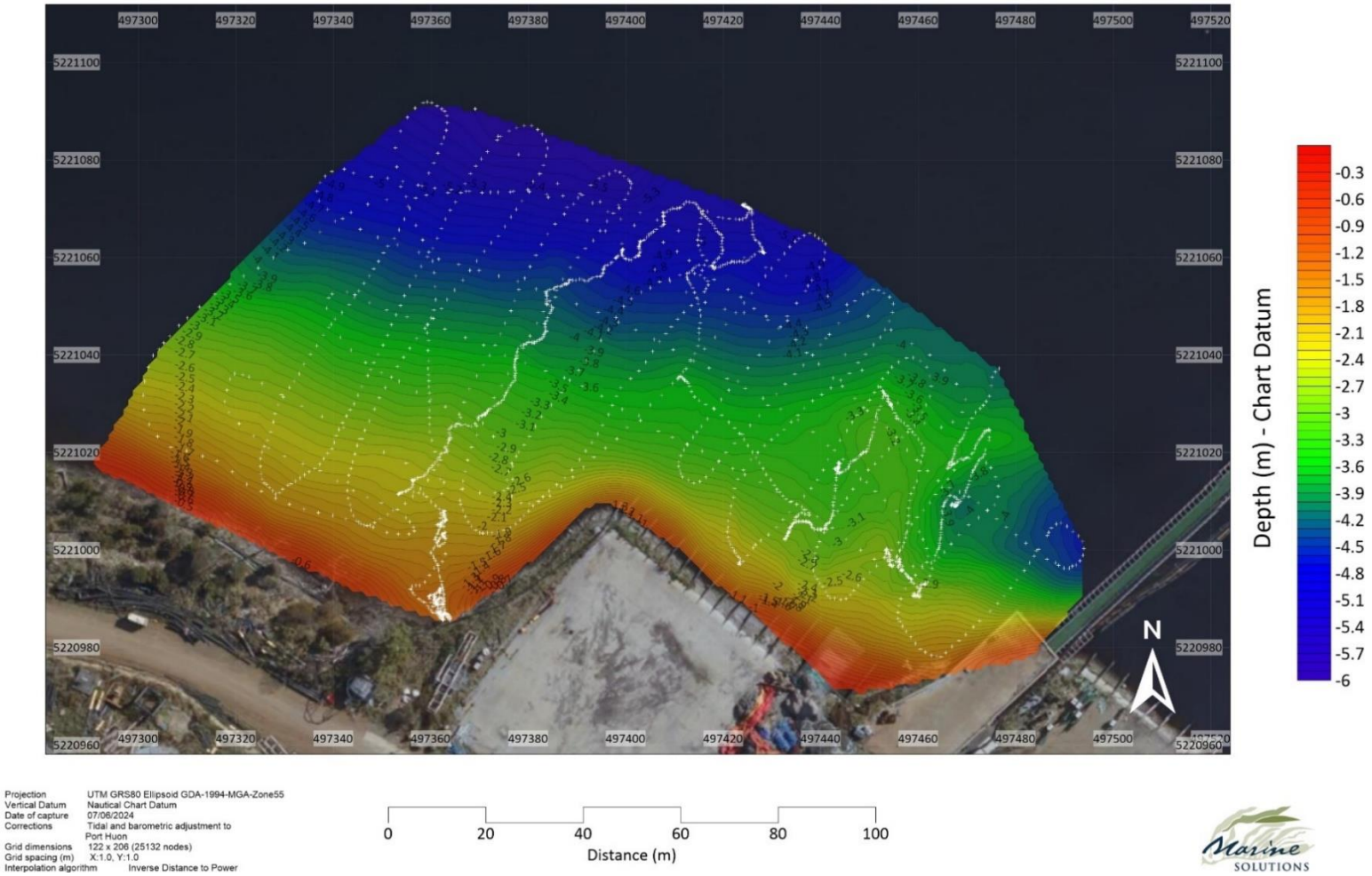


Figure 5. Bathymetry of the western zone of the study area.

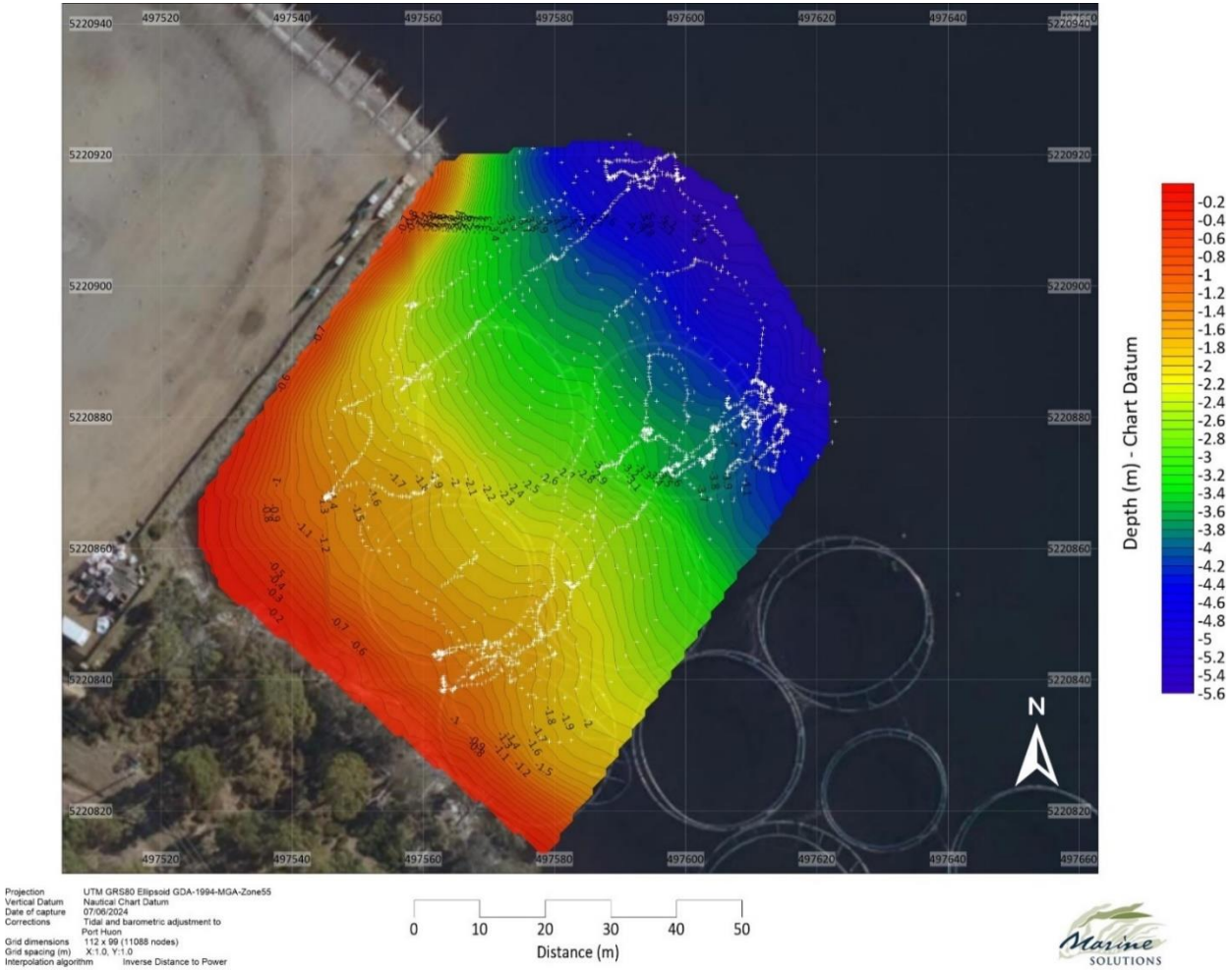


Figure 6**.** Bathymetry of the eastern zone of the study area.

5 Natural Values Surveys

5.1 Intertidal surveys

5.1.1 Methods

An intertidal habitat survey was conducted on 7th June 2024 to characterise the intertidal habitat within the study area (Figure 7). Quadrats were placed haphazardly throughout all areas of potential habitat. Quadrats were searched thoroughly, including undersides of any loose cobbles/boulders, and all species found were noted and photographed when possible. In addition, personnel conducted a timed search throughout potential habitat areas within the vicinity of the quadrats.

Figure 7. Intertidal habitat area searched as part of this study is indicated by the orange lines. Red outline indicative of the study area being assessed for marine natural values. Basemap: Google satellite.

5.1.2 Habitats

The intertidal zone of most of the study area is relatively narrow, owing to the steep slope of the existing reclamation. The slope of the shore is more gradual, and the intertidal zone is broader on the natural northwestern and southeastern ends of the surveyed area. Intertidal habitats across the area are shown in Figure 8 and described in more detail in **Error! Reference source not found.**.

Table 4 Description of intertidal habitats.

Shoreline segment	Habitat description	Photo in Figure 8
Eastern-most shore segment	Small angular cobbles on sand/gravel	1
Southeastern corner beside the existing reclamation	Sand with scattered oyster shells	2
Eastern side of the existing reclamation	Small angular boulders on cobbles	3
Western side of the existing reclamation	Outer segment covered in shell debris from net cleaning, inner length covered in cobbles with occasional boulders	4
Western-most shore segment	Small cobbles on gravel	5

5.1.3 Species

The intertidal communities across the site were relatively species poor (Table 5). The gold-mouthed conniwink was the most common species, with the several small individuals of the introduced Pacific oyster. A single mangrove air-breather was also recorded. Most of the debris was mussels with encrusting barnacles and tubeworms (*Galeolaria*), along with a relatively large volume of dead stalked ascidians (Figure 9). It is likely that these species were transported to the area vie net cleaning activities. A cart-rut shell was also likely transported to the shore along with the mussels (Figure 10).

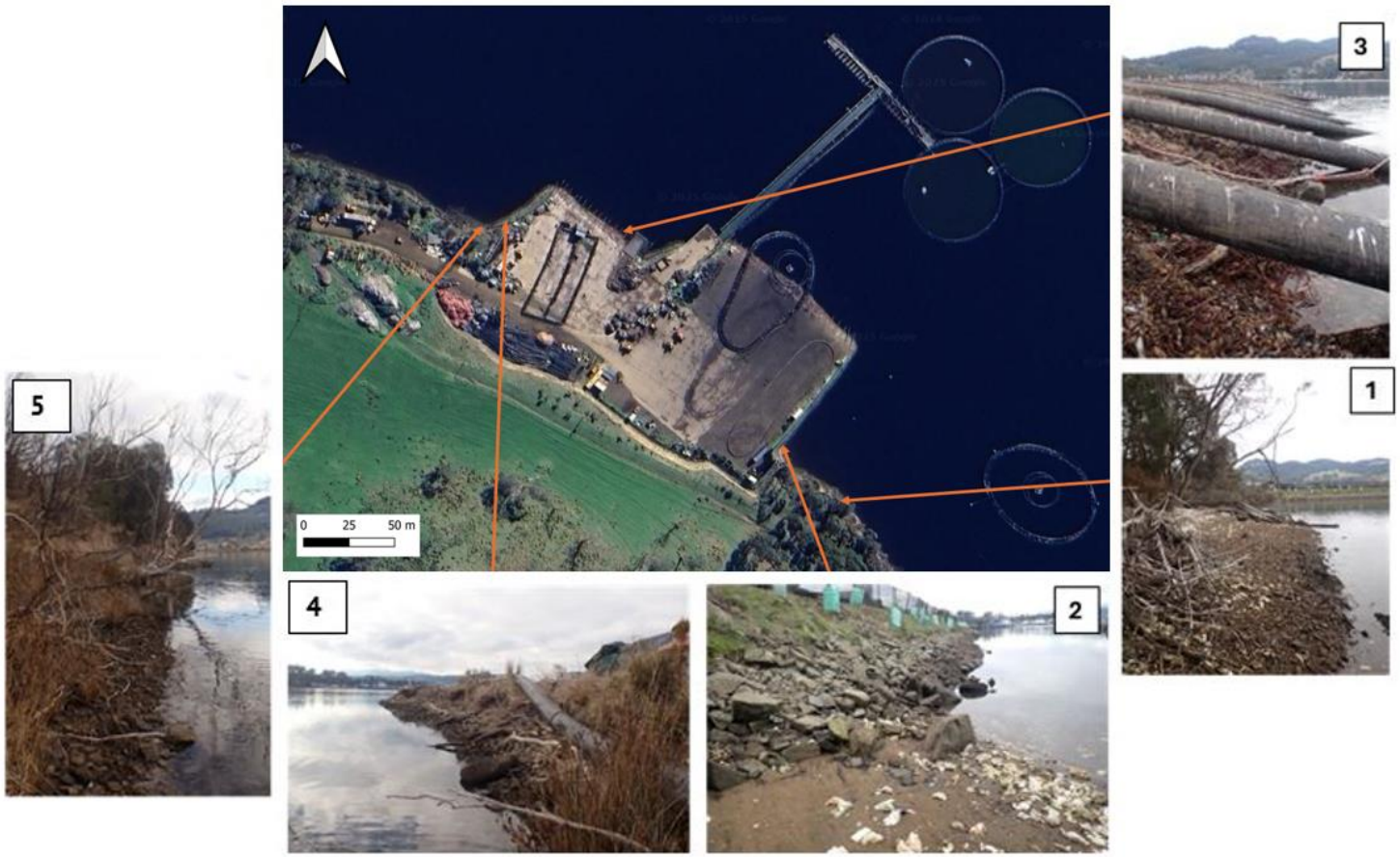


Figure 8. Images of intertidal habitats around the study area taken by Marine Solutions on 07/06/2024. Description of photos are provided in **Error! Reference source not found.**. Basemap: Google satellite.

Table 5. Species observed during the intertidal survey.

Common name	Species name	Status	Comment
Gold-mouthed conniwink	*Bembicium auratum*	Native	Abundant
Pacific oyster	*Magallana gigas*	Introduced	Few small, live shells. Many shell fragments
Mangrove air-breather	*Ophicardelus ornatus*	Native	Uncommon
Cartrut shell	*Dicathais orbita*	Native	Uncommon
Limpet	*Notoacmea* sp.	Native	Uncommon. Living on mussel shells
Tube worm	*Galeolaria caespitosa*	Native	Debris from net cleaning. Living on mussels
Blue mussel	*Mytilus galloprovincialis*	Native	Dead - debris from net cleaning
Barnacles		Native	Dead - debris from net cleaning
Stalked ascidians		Native	Dead - debris from net cleaning

Figure 9. Debris from net cleaning on the northern shore included mussels (left) and stalked ascidians (right).

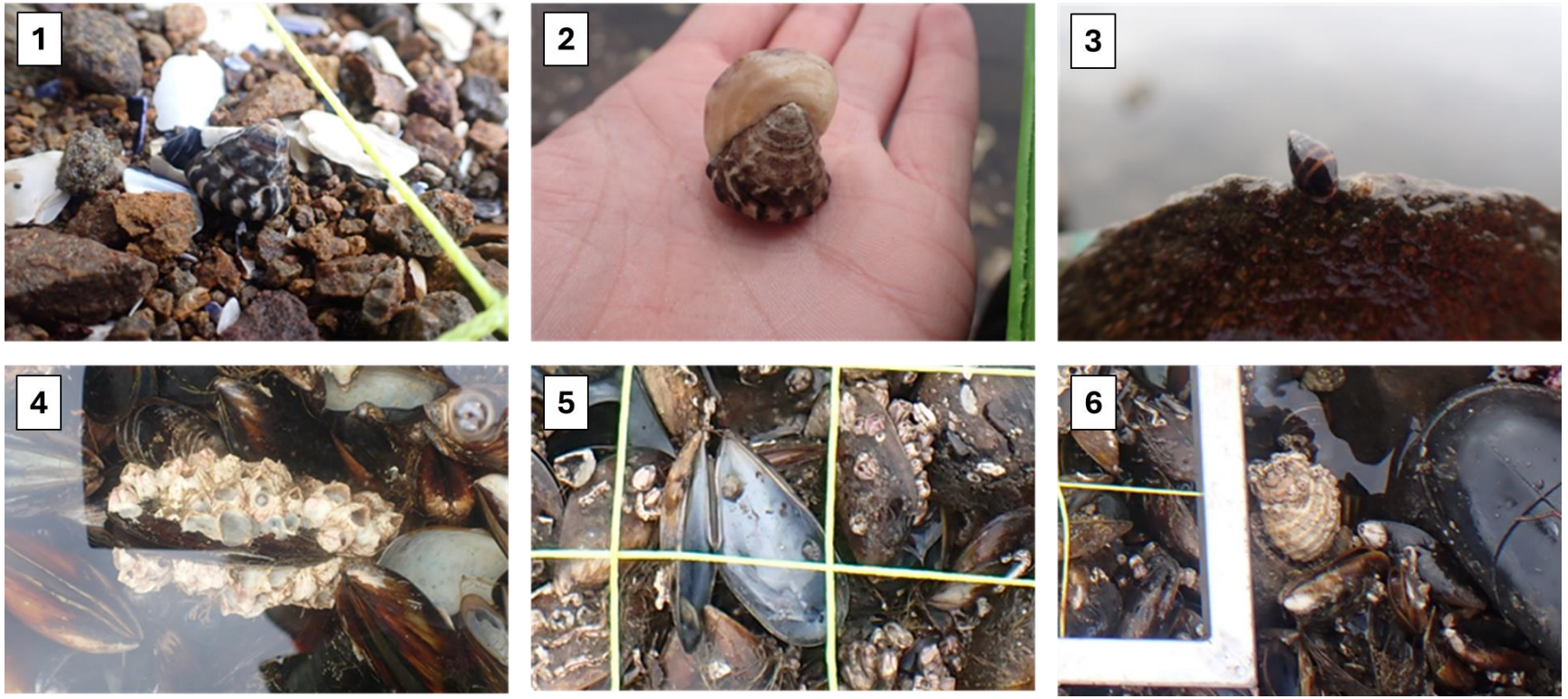


Figure 10. Intertidal species recorded during the survey including 1) gold-mouthed conniwink, 2) Pacific oysters, 3) mangrove air-breather, 4) barnacles (dead), 5) limpets and a 6) cart-rut shell.

5.1.4 Live bearing sea star

No seastar species (including the live-bearing sea star) were observed in quadrats or during the timed search.

5.2 Subtidal surveys

5.2.1 Methods

A survey was conducted on the 7th June 2024 to charactarise the subtidal habitat using a remotely operated vehicle (ROV) (Figure 11). The survey involved seven belt transects of approximately 1 m wide, totalling a searched area of around 375 m^2.

A targeted search for spotted handfish was conducted concurrently in the survey area. Numbers of northern Pacific sea star (*Asterias amurensis*) (a known predator of handfish eggs) were recorded, as well as any suitable handfish spawning habitat structures such as ascidians, *Caulerpa* and seagrass. Video footage of subtidal habitat transects is available from Marine Solutions upon request.

Figure 11. Map of ROV transects to characterise subtidal habitats (yellow solid lines) within the study area. Basemap: Google satellite.

5.2.2 Habitats

Subtidal habitats observed in the subtidal habitat survey were predominantly fine sand with moderate levels of bioturbation in the form of holes, likely belonging to small crustaceans, such as the ghost nipper (*Trypaea australiensis*; Figure 12, images 1 and 2). Some areas were dominated with bioturbation likely created by polychaete worms (Figure 12, image 3). The predominantly sandy habitat (Figure 12, image 4) was interrupted in places by patches of small cobbles (Figure 12, image 5) and patches of dead shells, mainly oysters and mussels (Figure 12, image 7). Several isolated strands of seagrass were observed on the northwestern side of the study area (Figure 12, image 8).

5.2.3 Debris

Debris from human activities was observed in the subtidal region. This included organic material, primarily sea tulips, mussel shells and barnacles, left over from net-cleaning activities on the shore (Figure 9), which extended a short distance into the subtidal zone. Other material observed in the subtidal area included timber, cable, pipe and rope (Figure 13).

Table 6. Observations of subtidal habitat characteristics. ✓ denotes that the element was present but not readily enumerable.

Category	Element	Detail	T1	T2	T3	T4	T5	T6	T7
Habitat	Mussel shells (dead)			✓					
	Oyster shells (dead)			✓					
	Scallop shells (dead)	Commercial scallop. Isolated shells			✓				
	Scallop + mussel shells (dead)	Sometimes covered in fine sediment			✓				
	Sea tulip stalks (dead)					✓			
	Fine sediment		✓	✓	✓	✓	✓		
	Sand		✓					✓	✓
	Shell grit / fragments		✓		✓	✓			
	Cobbles - sparse						✓		
	Cobbles - medium density		✓	✓					
	Boulder - small to medium size		✓	✓		✓			✓
	Sandstone blocks, angular, broken					✓			
Bioturbation	Small holes - low density		✓						✓
	Small holes - medium density							✓	
	Medium holes - low density					✓	✓		✓
	Medium holes - high density								✓
	Medium holes - medium density		✓					✓	✓
	Large holes - low density		✓	✓					
	Large holes - medium density			✓					
	Worm mounds							✓	
Debris	Horizontal timber			1					
	Large diameter pipe or drum long					1			

	Pipe / cable		2
	Vertical timber	1	

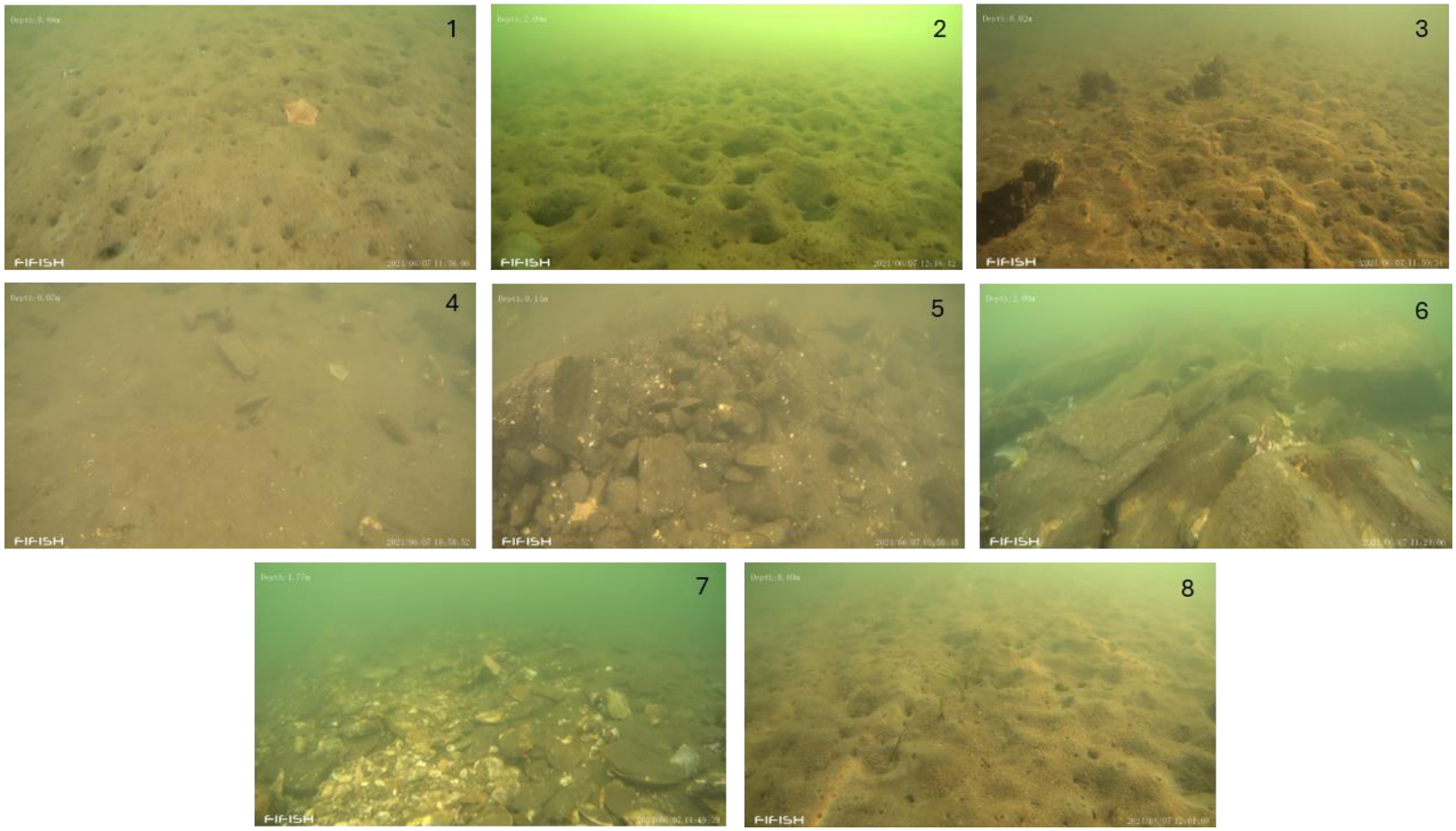


Figure 12. Examples of habitats observed throughout the subtidal habitat survey, including 1) fine sand with medium density bioturbation (crustacean holes), 2) high density bioturbation, 3) worm holes with mounds of sand around the aperture, 4) fine sand with little bioturbation, 5) cobbles and mussels, 6) angular cobbles, 7) shelly debris, 8) isolated strands of seagrass.

Figure 13. Examples of debris from human activities in the subtidal area: 1) accumulated shelly material, 2) stalks of sea tulips, 3) cable and blocks, 4) rope on a pipe segment, 5) cable or tubing, 6) pieces of timber.

5.2.4 Species

Species observed in the subtidal survey were dominated by sea stars, predominantly the New Zealand common cushion star (up to 112 individuals on transect T4), with moderate numbers of northern Pacific sea stars (2 – 16 individuals) occurring on all transects (Table 7). Several eleven-

arm sea stars were observed on transect T4. Other invertebrates included living Pacific oysters, as well as the shells of oysters, mussels and scallops (Figure 14).

Demersal fish observed included moderate numbers of sand gobies observed retreating into crustacean holes in the sand as the ROV approached, a gurnard, a variable threefin, and several southern hulafish. A black bream was also observed in the water column (Table 7).

5.2.5 Handfish

No handfish were observed during the handfish surveys. All stalked ascidians observed were dead and prone on the substratum as debris from net washing activities in the area. Northern Pacific sea stars were common at relatively low densities throughout the surveyed area.

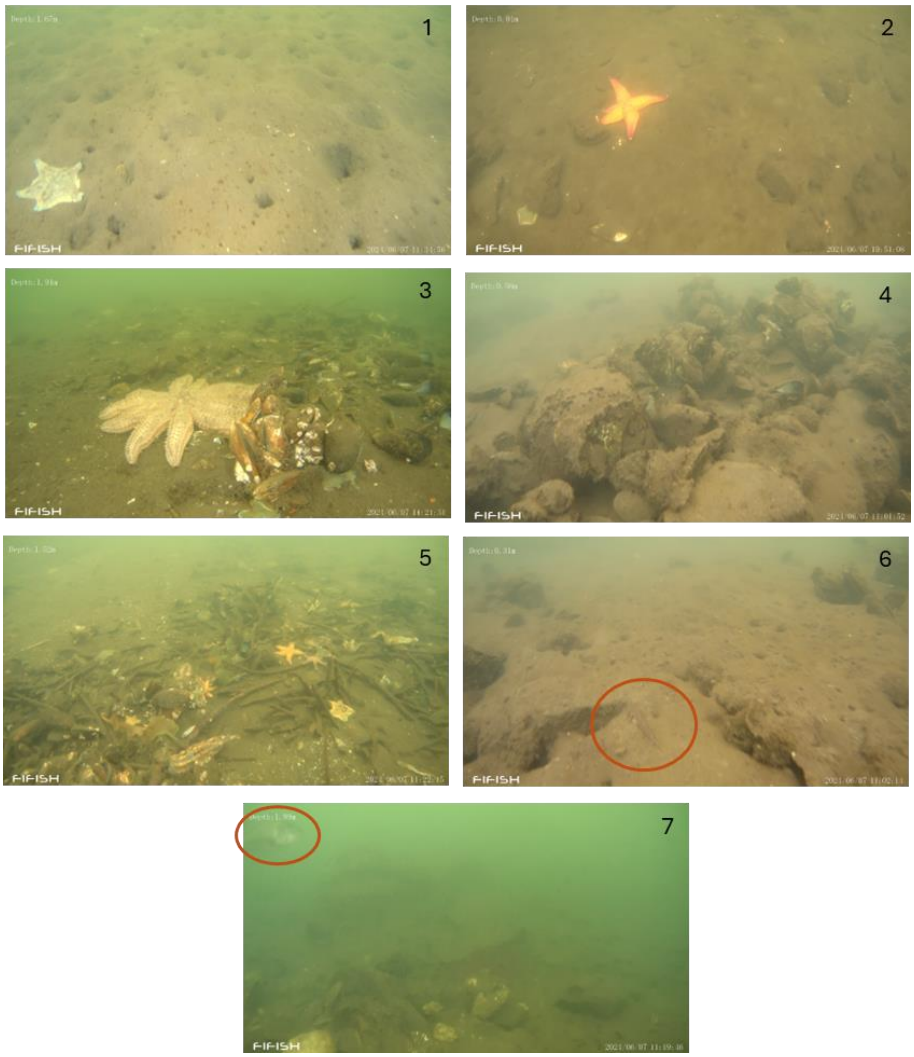


Figure 14 Examples of species observed throughout the subtidal habitat ROV survey: 1) New Zealand common cushion star, 2) northern Pacific sea star, 3) eleven-armed sea star, 4) Pacific oysters and edible mussels, 5) sea tulip stalks from net cleaning, 6) sand goby, 7) black bream.

Table 7. Observations of subtidal species. Non-native species are highlighted in red. ✓ denotes that the element was present but not readily enumerable. Pink shading reflects non-native species.

Category	Element	Detail	T1	T2	T3	T4	T5	T6	T7
Species	Barnacles on cobbles	Husks only				✓			
	Eleven-arm sea star	*Coscinasterias muricata*				3			
	Edible mussel	*Mytilus galloprovincialis*. Dead shells	6	7		10	9		✓
	New Zealand common cushion star	*Patiriella regularis*	14	2	88	112	61	6	14
	Northern Pacific sea star	*Asterias amurensis*	6	2	10	18	9	6	3
	Pacific oyster	*Magallana gigas*. Living and dead shells	16	9			8	9	1
	Black bream	*Acanthopagrus butcheri*				1			
	Southern hulafish	*Trachinops caudimaculatus*. Between rocks				3			
	Spiny gurnard	*Lepidotrigla papilio*			1				
	Sand goby	*Nesogobius* sp.		12			5	10	3
	Variable triplefin	*Forsterygion varium*				1			
Species/Habitat	Seagrass	Isolated plants							

6 Conclusions

The marine environment within the study area demonstrated low species richness with no threatened or protected species observed during field surveys.

The intertidal habitat in the study area predominantly consisted of small cobbles and shell debris. The natural intertidal zones demonstrated greater biodiversity than regions on the edge of the wharf reclamation. Gold-mouthed conniwink were the most abundant species observed during intertidal sampling.

The subtidal benthic habitat comprised of bioturbated fine sand with small patches of small cobbles. Several isolated strands of seagrass were observed on the northwestern side of the wharf. Species identified during the subtidal surveys included molluscs, echinoderms, and fish species and non-native species, including Northern Pacific sea stars.

No threatened or protected species were observed during field surveys.

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8 Appendices

Appendix 1. Operational summary

Date	Personnel	Time (start)	Time (end)	Cloud	Rain	Swell	Wind	Tide	Works conducted
07/06/2024	T. Alexander J. Watling E. Johnson	09:30	13:30	5/8	Drizzle	Calm	Calm	High	Bathymetric survey, intertidal survey, subtidal survey