Environmental Incident Response Plan

Huon Aquaculture Group Pty Ltd

HUON TASMANIA

Whale Point Nursery

Contents

1. Purpose

Huon Aquaculture recognises that incidents can occur during its site operations which may cause environmental harm or environmental nuisance.

Huon is committed to providing sound environmental management practices to prevent incidents where practicable and to minimising environmental harm if they do occur.

This plan has been prepared for Whale Point Nursery operations to identify potential environmental incidents that may occur during operations and provide specific instructions to allow staff to respond quickly and efficiently to incidents if they do occur.

This plan has been prepared to satisfy the requirements of EPA Tasmania's Environmental Licence Condition for the Whale Point Nursery (EL 10296/1), specifically Condition OP1 Contingency Management.

This plan should be read in conjunction with the following Huon Aquaculture site documentation:

- CQF 0117.19 Whale Point Emergency Action Guide,
- CSOP0129.3 Fire Management Plan 2019/20 – Whale Point Nursery,
- AQM0130.12 Environmental Management Plan – Whale Point Nursery.

2. Scope

This plan covers all areas of operation associated with the Whale Point Nursery including:

- Recirculation Facility
- Wastewater Treatment Plant
- Wastewater storage
- General site operations (e.g. chemical and waste storage and disposal)

This plan is applicable to all persons who conduct work on the site at Huon Aquaculture Company's Whale Point Nursery. This includes all staff, management and contractors of Huon Aquaculture and any staff and sub-contractors employed by external companies to conduct operations at this facility.

3. Definitions

An **environmental incident** is defined as a non-routine event that causes, or may cause, environmental harm or environmental nuisance to an environmental receptor (e.g. air, water, land, wildlife, general public). This may include fuel or chemical spills or leaks, waste water discharges, solid waste spills, liquid effluent spills, odour emissions, noise emissions, significant fish mortalities, fire, waste or litter offsite.

Environmental harm is any adverse effect on the environment (of whatever degree or duration) and includes an environmental nuisance.

Environmental nuisance is the emission, discharge, depositing or disturbance of a pollutant that unreasonably interferes with, or is likely to unreasonably interfere with, a person's enjoyment of the environment; and any emission, discharge, depositing or disturbance specified in an environment protection policy to be an environmental nuisance.

4. Potential Environmental Incidents

The following incidents have been identified at the Whale Point Nursery as having potential to cause environmental harm or nuisance:

Table 1 Potential Environmental Incidents at Whale Point

Potential Incident	Example Situation	Potential Environmental Harm or Nuisance	Current Mitigation Measures	Response Plan if occurs
Chemical spill (incl. chemicals, fuel, oil)	Accidental spill while using chemicals. Accidental spill from refuelling equipment. Incorrect storage of chemicals resulting in leaks or spills. Leaks from equipment or machinery.	Chemical enters stormwater or Huon River. Spilt chemical may ignite fire onsite.	Chemicals, fuel and oil stored in secure, bunded covered areas. SDS located near storage point. Routine inspections of chemical use and storage areas. Routine equipment maintenance. Chemical inventory and SDSs for all chemicals on ChemAlert. Spill kits and fire extinguishers adjacent to storage areas. Routine spill response training for onsite staff. Verified through quarterly environmental audits.	Refer Section 10.2
Solid waste spill Liquid effluent spill	Accidental spill during transfer of waste to storage bins or disposal trucks. Malfunction of waste treatment system resulting in spill Waste pipe fails or ruptures resulting in spill.	Solid waste or liquid effluent enters stormwater or Huon River Odour emissions to general public and residents	Waste treatment system within enclosed building with drains connected to collection tank. Spill kit inside and outside Waste treatment building. Routine equipment maintenance. Verified through quarterly environmental audits.	Refer Section 10.3
Unplanned discharge of waste water	Leaking or failure of wastewater dam. Accidental overfilling of net liner. Septic tank leak.	Wastewater or septic waste enters stormwater or Huon River.	Routine equipment maintenance. Level controls in all tanks with warning alarms. Stop valve on dam and pipeline to net liner. Flow meter at net liner fill point. Emergency spillway on wastewater dam. Whale Point Dam Operations, Maintenance and Surveillance Manual. Spill kits throughout site. Verified through quarterly environmental audits.	Refer Section 10.4

Potential Incident	Example Situation	Potential Environmental Harm or Nuisance	Current Mitigation Measures	Response Plan if occurs
Excess wastewater requiring disposal	Excess waste water produced onsite that cannot be stored in dam or transferred to net liner.	Waste water enters stormwater or Huon River	Dam level monitoring system. Depth sensor in net liner. Flow rate used to calculate when net liner is full. Stop valve on dam and pipeline to turn off water flow.	Refer Section 10.4
Mass fish mortality	Mass fish mortality due to disease or unfavourable conditions in tanks such as low oxygen or excessive water temperatures.	Loss of stock. Disease spread to Huon River. Disease spread across other Huon hatcheries or external aquaculture facilities.	Fish Farm Management Plan – Whale Point Nursery. Virkon mats at entrance points. Routine monitoring of water quality and fish health. Maintenance of optimal fish health and feeding regimes. Strategic vaccination. Fish stock held at multiple sites.	Refer Section 10.5
Fish Escape	Fish escape into River during fish transfer.	Loss of stock Non-native species entering Huon River	Stop valve on fish out pipe. Transfer design to minimise. Staff on hand at all times to ensure safe transfer. Routine equipment maintenance.	Refer Section 10.6
Power Failure	Partial or full loss of power to site.	Odour emissions from WWTP Loss of stock	Four backup generators onsite. Routine testing of generators. Trimming of vegetation near powerlines. Routine equipment testing and tagging.	Refer Section 10.7
Fire	Bush fire encroaches on site. Fire caused by ignition of site equipment or tools.	Injury or loss of personnel Loss of stock Loss of native vegetation around site Injury or loss of native fauna	Fire Management Plan for site. Multiple fire extinguishers onsite. Sprinkler system on roof. Vegetation around site maintained. Non-compatible chemicals stored separately. Verified through OHS audits.	Refer Section 10.8
Flood	Excessive rainfall floods site.	Loss of stock from damaged equipment	Site is built 10 m above sea level and sloped downwards to River. Stormwater drainage system around site built to cope with 1 in 100-year flood event. Drains are kept clear of debris build-up.	Refer Section 10.9

5. Incident Classification

For management purposes, incidents are classified into three categories, Level 1, 2 or 3 depending on the severity, impact and consequences, as outlined in the table below.

Table 2 Incident classification

Level	Description	Examples	Notification Requirement
1	Negligible to Low potential for offsite environmental harm or nuisance.	• Fish effluent confined to site and not entering stormwater drains or waterways. • Non-toxic chemical spill confined to site and able to be cleaned immediately. No chemicals entered the River, drain or exited the site. • Short-term environmental nuisance caused by noise, dust, odour, fumes, lighting.	Internal Notification – Refer Section 6.1
2	Medium potential for offsite environmental harm or nuisance.	• A small amount (less than 50 litres) of fish effluent entering stormwater drains or waterways. • Any chemical spill that cannot be contained and cleaned up immediately. • Prolonged environmental nuisance beyond site boundary caused by noise, dust, odour, fumes, lighting. • Accidental discharge of waste water to land or water. • Vegetation clearance without a permit. • Injury or death to native fauna.	Internal Notification – Refer Section 6.1 External Notification – Refer Section 6.2
3	High potential for environmental harm or nuisance A serious event and must be handled with the utmost urgency.	• Fish effluent greater than 50 litres entering stormwater drains or waterways is considered a major environmental incident and efforts must be made to isolate the problem and contain the spill. • Any chemical spill that cannot be contained to an area of 1 metre squared. Chemicals can leach into the sub soils and cause damage to groundwater. • Significant fish mortality. • Significant fish escape. • Fire or explosion from operations. • Flooding of site.	Internal Notification – Refer Section 6.1 External Notification – Refer Section 6.2

6. Incident Notification

6.1 Internal Notification

All incidents (Levels 1, 2 and 3) are to be reported to the Hatchery Manager who will contact the appropriate person(s) and authorities depending on the severity of the event.

The following information is to be relayed to the Hatchery Manager:

- Your name and contact details
- Location of incident onsite
- Date and time of incident
- Nature of incident

Note: all staff, contractors and visitors to site who observe an environmental incident have a duty to notify the Hatchery Manager of that incident.

6.2 External Notification

6.2.1 Emergency Services

If an incident presents direct threat to human health or property, emergency services (000) are to be contacted immediately.

The following information is to relayed to emergency services

- Whether you want Police, Fire or Ambulance
- Nature of incident
- Location of incident - Huon Aquaculture Whale Point Nursery, 1 Whale Point Road Port Huon Tasmania)
- Nearest cross road (Whale Point Road and Huon Highway)

Note: all staff, contractors and visitors to site who observe an environmental incident have a duty to notify emergency services in the event of an emergency. Also advise the Hatchery Manager if you have already called emergency services.

6.2.2 Regulatory Authorities

If the notifiable incident is a Level 2 or 3 incident, the following authorities must be notified by telephone within 24 hours of incident occurring:

- **EPA** on **1800 005 171** if the incident has caused, or may cause, serious or material environmental harm, or if the activity is regulated by the EPA.

The following information is to be relayed to regulatory authorities:

- Your name and contact details
- Location of incident onsite
- Date and time of incident
- Nature and duration of incident

- Actions taken or proposed to be taken to deal with the incident
- Anything else relevant to the incident

The Freshwater Environment Manager is responsible for notifying regulatory authorities and any other external authorities that may be potentially impacted by the incident.

6.3 Emergency Contacts

The following are key contacts in the event of environmental incident at Whale Point Nursery:

Table 3 Whale Point Emergency Contacts

Emergency Phone Numbers	Contact	Direct	Office	Email
INTERNAL				
Hatchery Manager	Lindsay Pettit	0428 594 467	03 6266 0066	lpetit@huonaqua.com.au
Hatchery Manager	Nathan Rowe	0447 599 923	03 6266 0066	nrowe@huonaqua.com.au
Freshwater Environment Manager	Adam Chapman	0497 042 809	03 62663934	achapman@huonaqua.com.au
General Manager Freshwater Operations	David Mitchell	0427 353 334	03 6295 8109	dmitchell@hounaqua.com.au
Veterinarian & General Manager Fish Performance	Steve Percival	0429 146 048	03 62958126	spercival@huonaqua.com.au
Assistant Veterinarian & Fish Health Manager	Jasmine Knowles	0429 200 573		jknowles@huonaqua.com.au
Corporate Communications & Community Relations Manager	Pene Snashall	0418 313 414	03 62394219	psnashall@huonaqua.com.au
WHS Advisor	Kylie Clark	0429 583 610		kclark@huonaqua.com.au
Compliance team	Matthew Whittle	0438 566 259		compliance@huonaqua.com.au
EXTERNAL				
EPA	Sarah Richards	1300 368 550	03 6165 4607	Sarah.Richards@epa.tas.gov.au
Huon Valley Council	Amanda Blakney		03 6264 0300	ablakney@huonvalley.tas.gov.au
Inland Fisheries Service		1300 INFISH		infish@ifs.tas.gov.au
Police	Huonville police	000	03 6264 8700	
Fire		000		
Ambulance		000		
SES		132 500		
TasNetworks		132 004		

7. Incident Investigation and Reporting

All environmental incidents are to be reported to the Freshwater Environment Manager via Huon's Incident Report Form contained in **Section 11 - Attachments**.

Completed Incident Report Forms are to be submitted to **achapman@huonaqua.com.au** and **compliance@huonaqua.com.au**

Where required, the Freshwater Environment Manager (or delegate) will undertake an incident investigation for internal and external reporting requirements.

If an External Incident Report is required for regulatory authorities, the following information is to be included:

- Detailed description of incident
- Detailed description of incident response and clean-up
- Investigation into cause of incident
- Summary of remedial actions and recommendations

Photographs of the incident and clean-up or remedial actions should be taken where practicable.

The Freshwater Environment Manager will submit the internal and external incident reports to the relevant parties.

Following an environmental incident, a review of the relevant incident response procedure will be undertaken and updated as required to prevent reoccurrence.

8. Incident Management Responsibilities

All Huon staff, contractors and site visitors have a responsibility to maintain safety of the site. The following table identifies individual responsibilities when onsite at Whale Point Nursery:

Table 4 Whale Point Incident Management Responsibilities

Role	Responsibility
Contractors / visitors to site	Notify a Huon staff member of incident as soon as practicable. Follow site Emergency Action Guide or Environmental Incident Response Plan if required.
Huon Staff	Notify emergency services (if required). Notify Hatchery Manager of incident as soon as practicable. Implement site incident response procedures. Follow site Emergency Action Guide in the event of an emergency. Be aware of Environmental Incident Response Plan and incident response procedures. Participate in routine incident response drills
Hatchery Manager	Notify emergency services (if required). Notify Freshwater Environment Manager of incident as soon as practicable. Notify Vet or other Managers (if required). Coordinate incident response. Ensure all staff onsite are aware of the site Emergency Action Guide, Environmental Incident Response Plan and incident response procedures. Undertake routine incident response drills.
Freshwater Environment Manager	Notify other Managers or Director (if required). Notify external authorities if required (EPA, Huon Council). Notify relevant land owners and/or asset owners of incident where it extends beyond the site boundary. Undertake incident investigation. Submit Internal and External Incident Investigation Report.
Communications Manager	Manage any external communications, media or general public enquiries.

9. Training and Communication

Site inductions will include discussion of the Environmental Incident Response Plan. All staff will be aware of this plan and their incident response responsibilities.

Routine incident response training will be undertaken as part of site toolbox meetings.

Records of site inductions and incident response training will be kept by HR.

10. Incident Response Procedures

10.1 General Incident Response

The following guidelines are general response guidelines in the event of an environmental incident:

1. Assess the size and severity of the incident.
2. Avoid danger to yourself, others and the environment.
3. Isolate or stop incident to prevent further loss or damage if safe to do so.
4. Report incident to Hatchery Manager who will notify other Huon staff or external authorities where necessary.
5. Investigation and Reporting in line with Section 7 above.

10.2 Chemical Spill Response Plan

1. Report spill immediately to Hatchery Manager and Freshwater Environment Manager.
2. Identify spilt material and potential hazards by reading label on container or Safety Data Sheet (SDS). **Note: If spilt material is too dangerous for localised clean up call Tas Fire 000 (e.g. fire or explosion risk, human health hazard).**
3. If you are responding to the spill, make sure you are wearing the appropriate PPE. Consult SDS for guidelines.
4. Shut off or stop the source of the spill where able to (e.g. turn off equipment, pumps, valves, turn drum upright.).
5. Block inlets to any nearby stormwater drains, sewers, waterways or environmentally sensitive areas using items in spill kits e.g. absorbent booms.

   Note: If the spill has already made its way to drains or waterways, the Freshwater Environment Manager will contact appropriate external authorities.
6. If spill is able to be contained, scoop or pump as much material as possible, starting from the outer edges and working towards the centre. Store any collected material for disposal in a designated bin.
7. Upon removal of the majority of the spill, apply the spill absorbent product from the spill kit or other absorbent material (sawdust) onto the spill area. With a stiff-bristled broom, mix the absorbent material into the spill until all spillage is absorbed.
8. Once all spillage has been absorbed, immediately scoop or shovel the saturated absorbent material into in a designated bin.
9. Where the material has soaked into soil, it will be more appropriate to excavate the contaminated ground and place contaminated soil into a designated bin.
10. Check SDS for disposal requirements. Where appropriate, call a licensed waste contractor to dispose of spill material to an EPA/council approved waste disposal facility.
11. If the source of the spill is a leaking container (e.g. drums, IBC), move container to a bunded area until removal. Transfer any remaining material to a suitable container for reuse. Leaking equipment or machinery is to be stored in a bunded area until repair.
12. Restock all used spill kit equipment.

10.3 Waste Spill Response Plan

10.3.1 Solid waste spill

1. Access the Spill response kit and appropriate Personal Protective Equipment (PPE) located onsite.
2. Shut off and control source of spill where able to (e.g. container turned upright, valve closed, operation ceased, leaking equipment moved to containable area etc.).
3. Notify Hatchery Manager and Freshwater Environment Manager of spill.
4. Block inlets to any nearby stormwater drains, sewers, waterways or environmentally sensitive areas using items in spill kits e.g. absorbent booms

   Note: If the spill has already made its way to drains or waterways, the Freshwater Environment Manager will contact appropriate external authorities and neighbours to inform them of potential problems with water quality.
5. If spill is able to be contained, scoop or pump as much material as possible, starting from the outer edges and working towards the centre. Store any material for disposal in a designated bin.
6. Upon removal of the majority of the spill, apply the spill absorbent product from the spill kit or other absorbent material (sawdust) onto the spill area. With a stiff-bristled broom, mix the absorbent material into the spill until all spillage is absorbed.
7. Once all spillage has been absorbed, immediately scoop or shovel the saturated absorbent material into in a designated bin.
8. Where the material has soaked into soil, it will be more appropriate to excavate the contaminated ground and place contaminated soil into a designated bin.

10.3.2 Liquid effluent spill

1. Access the Spill response kit and appropriate Personal Protective Equipment (PPE) located onsite.
2. Shut off and control source of spill where able to.
3. Notify Hatchery Manager and Freshwater Environment Manager of spill.
4. Block inlets to any nearby stormwater drains, sewers, waterways or environmentally sensitive areas using items in spill kits e.g. absorbent booms.
5. Any escaped liquid effluent will be directed to the wastewater dam where it will be discharged to the net liner. Prior to discharge to the net liner, Nitrogen, Phosphorous and Ammonia levels will be measured from the dam.
6. Field samples will be collected from the dam by a nominated staff member and tested in the onsite laboratory. **Field samples must not exceed the following levels - 20 mg/L for Total Nitrogen, 7 mg/L for Total Phosphorous and 1 mg/L for Ammonia.**
7. If field samples exceed acceptable levels for Nitrogen, Phosphorous or Ammonia, lab samples will be collected from the dam by the Freshwater Environment Manager and sent to AST laboratories. **Lab samples must not exceed the following levels - 20 mg/L for Total Nitrogen, 7 mg/L for Total Phosphorous and 1 mg/L for Ammonia.**
8. If field or lab samples exceed acceptable levels for Nitrogen, Phosphorous and Ammonia, water will remain in the wastewater dam and daily field samples will continue to be taken until results return to acceptable levels.
9. If field samples are within acceptable levels, water will be discharged to the net liner and diluted with town and Kermandie River water for bathing use on the well boat.
10. Prior to discharge from the net liner, field samples will be collected by a nominated staff member and tested in the onsite laboratory. **Field samples must not exceed the following levels - 20 mg/L for Total Nitrogen, 7 mg/L for Total Phosphorous and 1 mg/L for Ammonia.**
11. All field and lab sample results will be sent to EPA by the Freshwater Environment Manager.

10.4 Unplanned Discharge Response Plan

10.4.1 Net-liner overflow

1. Turn off pipeline to stop water flow from dam to liner.
2. Notify the Hatchery Manager and Well-Boat Manager.
3. Well-Boat Manager to advise on most appropriate action according to circumstances. This may include:
    - Pump water from liner to Ronja Huon to be used, or
    - Decant water from full liner into another liner and tow down river to be used, or
    - Tow full liner down river, use water and tow back before turning pipeline back on.

10.4.2 Excess wastewater requiring offsite disposal

1. Turn off waste water flow to dam.
2. Hatchery Manager to arrange Huon's licensed waste contractor Spectran to collect excess wastewater directly from dam.
3. If required, water carts will be brought onsite to pump and store excess water until contractor is able to dispose.

10.4.3 Septic tank spill

1. Access the Spill response kit and appropriate Personal Protective Equipment (PPE) located onsite.
2. Shut off and control source of spill where able to.
3. Notify Hatchery Manager and Freshwater Environment Manager of spill. Hatchery Manager to contact plumber – **Huon Plumbing 0417 547 265, 134 Main Rd Huonville.**
4. Block inlets to any nearby stormwater drains, waterways or environmentally sensitive areas using items in spill kits e.g. absorbent booms.
5. The plumber will remove the spilt material from site.
6. If septic spill enters wastewater dam, lab samples will be collected from the dam by the Freshwater Environment Manager and sent to AST laboratories for thermotolerant coliform testing. **Lab samples must not exceed 1000 CFU for Thermotolerant coliforms.**
7. If lab samples exceed acceptable levels for Thermotolerant coliforms, water will remain in the wastewater dam and daily lab samples will be taken by the Freshwater Environment Manager until results return to acceptable levels.
8. If lab samples are within acceptable levels, water will be discharged to the net liner and diluted with town and Kermandie River water for bathing use on the well boat.
9. Prior to discharge from the net liner, lab samples will be collected by the Freshwater Environment Manager and sent to AST laboratories for thermotolerant coliform testing. **Lab samples must not exceed 1000 CFU for Thermotolerant coliforms.**
10. All lab sample results will be sent to EPA by the Freshwater Environment Manager.

10.5 Mass Fish Mortality Response Plan

Response to a fish mortality will be dependent on the cause and severity of the mortality event. General guidelines may include:

1. Immediately assess the likely cause of mortality.
2. Notify the Hatchery Manager and Huon's Veterinarian/Fish Health Manager.
3. Hatchery Manager to advise on most appropriate action according to circumstances.
4. If the cause of mortality is due to failure in infrastructure systems isolate effected tanks f possible and rectify failure.
5. If disease or pathogen suspected, secure area and remove unnecessary staff from area to avoid contamination spread.
6. If disease or pathogen suspected, Vet or delegate to collect samples of fish for laboratory testing and monitor health of remaining fish.
7. Nominated staff member to remove mortalities from affected tank as soon as practicable using dip nets and in-tank mort collector. Mortalities must be removed before they start to decompose. **Staff are to adhere to strict biosecurity protocols to avoid contamination spread.**
8. Mortalities to be stored in designated bins.
9. All mortalities will be disposed of by Huon's licensed waste contractor Spectran. The Hatchery Manager will arrange for bin disposal immediately following clean-up.
10. Hatchery Manager and Vet will advise on any additional measures.

10.6 Fish Escape Plan

1. Notify the Hatchery Manager.
2. Hatchery Manager to notify Huon Veterinarian and Freshwater Environment Manager.
3. Freshwater Environment Manager to notify Inland Fisheries Service (1300 INFISH)
4. If escape is suspected to be more than 500 individuals, Marine Environment Manager to notify EPA via email SalmonRegulation@epa.tas.gov.au.
5. Hatchery Manager to decide on most appropriate action according to circumstances.
6. Operations Manager to establish accurate figures of numbers of fish, size of fish and species of fish that escaped.

10.7 Power Failure Response Plan

When power goes off

1. Check the site including circuit breakers to make sure outage is not being caused by equipment problems onsite.
2. If the power failure is the obvious result of another emergency (explosion, fire, accident, etc.) call **000** and respond to that emergency as appropriate (refer CQF 0117.19 Whale Point Emergency Action Guide).
3. If the power failure is a result of an external power outage report to TasNetworks on **132 004** and wait for standby generators to activate (this may take a couple of minutes).
4. Report power failure to Hatchery Manager and Operations Manager as soon as possible.
5. Ensure vital equipment continues to function on standby generator. Report any concerns to Hatchery Manager immediately.
6. Turn off major pieces of equipment not connected to the stand-by generator. Some equipment or tools left on will start up automatically when service is restored. Turning them off can prevent damage, injury and fire.
7. Halt any unnecessary works and turn off any unnecessary power supplies to conserve standby generator e.g. lights, tools or computers that don't need to be on.
8. Continue to undertake limited operations until power is restored.

When power is restored

1. Slowly turn on any equipment that has been turned off.
2. Shutdown standby generator and transfer load back to electric system.
3. Check and reload fuel for standby generators.

10.8 Fire Response Plan

Refer to CSOP0129.3 Fire Management Plan 2019/20 – Whale Point Nursery

10.9 Flood Response Plan

Flooding from waterways or weather events is considered remote at Whale Point Nursery due to the elevation and slope of the site.

During heavy rainfall and/or flooding events in the Port Huon area, the Hatchery Manager will monitor rainfall and flood weather warnings to assess risk to the site.

Should the site be at risk of flooding, the Hatchery Manager will notify the Operations Manager and Freshwater Environment Manager. The Hatchery Manager will then instruct site staff to implement appropriate flood response measures.

The level of response will be dependent on the severity of the flooding but may include:

- Installing sandbags around the site to protect buildings and equipment.
- Moving equipment and high value materials to higher ground.
- Securing or removing any materials at risk of being carried offsite.
- Evacuating staff to higher ground.

11. Attachments

11.1 Incident Report Form

Incident Report Form

Huon Incident Report Number (Admin Use Only):	

- All incidents must be reported to the Supervisor/Manager as soon as practicable after incident.
- After an incident, the Supervisor/Manager or staff member reporting the incident must complete this form and email a Word copy and any attachments to the appropriate business unit (see below).

Incident Type	☐ **Incident** Event causing damage to property, equipment, vessel or the environment **(Fill Section A, B)** ☐ **Accident** Event causing someone to get injured **(Fill Section A, B, C)** ☐ **Near Miss** Event that occurred but nearly caused an **Incident** or **Accident** **(Fill Section A, B)** ☐ **Hazard** Potential to cause injury or damage to property, equipment, environment etc. **(Fill Section A, D)**
Business Unit	☐ Safety (Email to kclark@huonaqua.com.au for Freshwater matters or bmunnings@huonaqua.com.au for Marine and Land based) ☐ Environment (Email to achapman@huonaqua.com.au for Freshwater matters or asmark@huonaqua.com.au for Marine and Land based)
Section A: Contact Details	
Employee Name	
Department / Zone	
Site	
Manager / Supervisors' Name	
Date Reported	
Employee Signature	
Section B: Event details	
Date & Time of Event	
Location of Event	
Event Description (What Happened?)	
Immediate Actions Taken (What Did You Do?)	

Authorities notified?	Name – Agency – Date – Response –
For spills please include the following information (if known)	Product spilt – Amount spilt – Size of area affected – Did spill enter stormwater drains? Did spill enter a waterway?
Are additional actions required?	
Other Information (anything else that is relevant)	
Photos attached?	

Section C: Injuries

Location on Body	
Injury Type	☐ Cut or Scratch ☐ Fainting ☐ Pain ☐ Seizure ☐ Crush injury ☐ Psychological ☐ Burn, including chemical burns ☐ Personal Illness ☐ Foreign object in eye ☐ Diving related ☐ Swelling and Pain ☐ Infection ☐ Respiratory ☐ Other:
Treatment Required (Tick One)	☐ No First Aid Treatment required and returned to work **(please explain why below)** ☐ Sent to WHS for Advanced First Aid Treatment ☐ External Medical Treatment required ☐ "000" called for Ambulance Assistance ☐ First Aid Treatment and returned to work **(please provide details below)**
Comments and Details	

Section D: Hazards

Location of Hazard	

Hazard Description (What has potential to cause an event?)	
Immediate Actions Taken (What Did You Do)	
Do you believe this Hazard needs further investigation?	Yes / No
Section E: (MANDATORY for Managers)	
Supervisor/ Manager Name	
Supervisor/ Manager Signature and Date	
Date Report Entered into Viking	
If Report Not Entered into Viking, please explain why	
ADMIN USE ONLY: (Business Unit to complete relevant sections)	
WHS Advisor Name	
Entered and triaged into Viking by Manager?	Yes / No
Reportable Incident (tick all that apply)	☐ WST ☐ MAST ☐ AMSA ☐ EPA ☐ MFB ☐ Other:
Environmental Manager	
Follow up Actions Required?	
Comments	
Signature and Date	

Fresh Water Product Range
Product Basic Data

Products	Weight Interval	Size	Species	Dig. Energy	Fat (%)		Crude Fat %	DP	Protein (%)		Crude Protein %
	gram	mm		(mj/kg)	From	To	Typical	%	From	To	Typical
Starter Feeds*											
Tri Plus 0.5mm	0.15 - 0.5	0.5	Salmon / Trout	18.3	15	16	15	52.4	58		58
Tri Plus 0.8mm	0.4 - 3.0	0.8	Salmon / Trout	19.3	18	19	18	49.5	56		56
Tri Plus 1.1mm	1.5 - 5.0	1.1	Salmon / Trout	19.0	18	19	18	49.1	56		56
Tri Plus 1.5mm	4 - 15	1.5	Salmon / Trout	19.0	18	20	18	48.0	51		52
Flow Through Feeds											
CPK 15	15 +	2.0	Salmon / Trout	19.0	20.5	23.5	Solid	43.0	46	52	48
CPK 40	40 +	3.0	Salmon / Trout	20.3	23	26	25	42.0	45	51	47
CPK 100	100 +	4.5	Salmon / Trout	20.8	27	31	29.5	38.0	40	44	41
Recirculation Feeds											
ORBIT CPK 15	15 +	2.0	Salmon / Trout	19.0	20.5	23.5	23	43.0	46	52	48
ORBIT CPK 40	40 +	3.0	Salmon / Trout	20.3	24	28	26	42.0	45	51	47
ORBIT CPK 100	100 +	4.5	Salmon / Trout	20.8	27	31	29	38.0	40	44	42
ORBIT CPK 400	400 +	4.5 / 6.5	Salmon / Trout	21.25	28	32	30	38.0	40	44	42
Intro Tuning*											
INTRO Tuning 15	15 +	2.0	Salmon	18.2	20	23	21	43.0	46	49	48
INTRO Tuning 40	40 +	3.0	Salmon	18.2	21	24	22	42.0	45	49	47
INTRO Tuning 100	100 +	4.5	Salmon	18.4	21	25	23	40.0	44	46	45
INTRO Tuning 250	250 +	4.5	Salmon	19.8	25	29	27	37.0	40	44	42

** All Starter and INTRO Tuning feeds have BioMar's Intro package applied (Immune stimulant, elevated vitamin levels)*

Intro Package can be applied to flow through or recirculation feeds at time of order

Fresh Water Product Range
Waste discharge

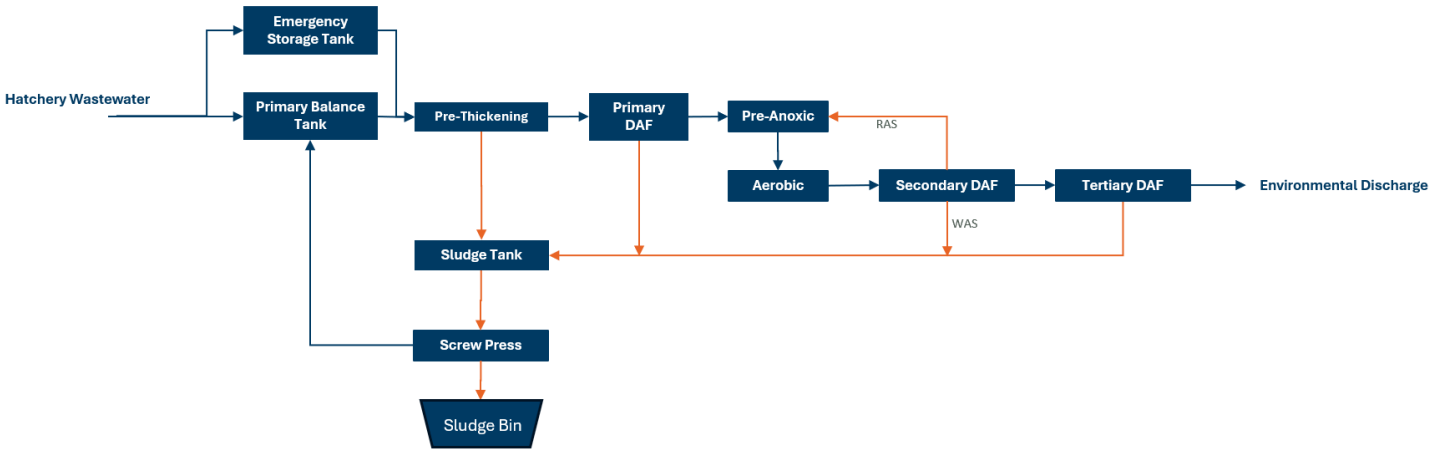
Products	Weight Interval	Size	Species	Total Phosphorus %	Total Nitrogen %
	gram	mm		Typical	Calculated
Starter Feeds*					
Tri Plus 0.5mm	0.15 - 0.5	0.5	Salmon / Trout	2.0	9.3
Tri Plus 0.8mm	0.4 - 3.0	0.8	Salmon / Trout	1.9	9.0
Tri Plus 1.1mm	1.5 - 5.0	1.1	Salmon / Trout	1.8	9.0
Tri Plus 1.5mm	4 - 15	1.5	Salmon / Trout	1.7	8.3
Flow Through Feeds					
CPK 15	15 +	2.0	Salmon / Trout	1.5	7.7
CPK 40	40 +	3.0	Salmon / Trout	1.5	7.5
CPK 100	100 +	4.5	Salmon / Trout	1.3	6.6
Recirculation Feeds					
ORBIT CPK 15	15 +	2.0	Salmon / Trout	1.5	7.7
ORBIT CPK 40	40 +	3.0	Salmon / Trout	1.5	7.5
ORBIT CPK 100	100 +	4.5	Salmon / Trout	1.3	6.7
ORBIT CPK 400	400 +	4.5 / 6.5	Salmon / Trout	1.0	6.7
Intro Tuning*					
INTRO Tuning 15	15 +	2.0	Salmon	1.6	7.7
INTRO Tuning 40	40 +	3.0	Salmon	1.5	7.5
INTRO Tuning 100	100 +	4.5	Salmon	1.3	7.2
INTRO Tuning 250	100 +	4.5	Salmon	1.3	6.7

Waste discharge (Kg) per 1000 Kg fish produced

Nitrogen	**FCR = 0.87**	**FCR = 1**	**FCR = 2**
Solid	5.2	6.1	7.3
Dissolved	22.8	30.5	42.4
Total	28.1	36.6	49.7

Phosphorus	**FCR = 0.87**	**FCR = 1**	**FCR = 2**
Total	7.3	9.0	11.6

Proposed Process – Activated Sludge



Concept block flow diagram of proposed system

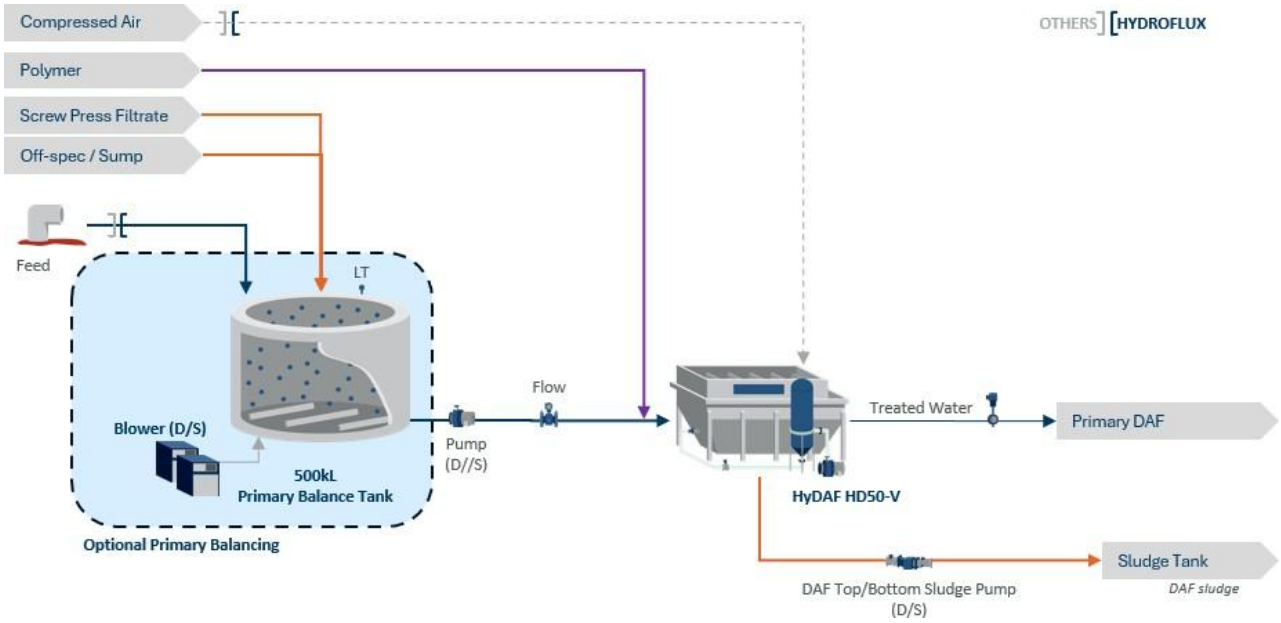
The following system is designed to treat wastewater to environmental discharge requirements. This system consists of the following process steps:

System	Description
Primary Balancing	Provide balancing and transfer pumping to the new WWTP.
Emergency Tank	Provide storage during peak periods, manage unexpected events in the hatchery and to optimize carbon utilization for nitrogen reduction
Pre-Thickening	Pre-thickening of wastewater via V-bottom DAF featuring top and bottom scrapers for removal of large debris
Screw Press Dewatering	Sludge dewatering via 2 x HUBER Q620 screw presses
Primary DAF	Bulk removal of suspended solid and oil and grease using dissolved air.
Pre-Anoxic	Non-aerated open-top reactor for denitrification.
Aerobic	Aerated tank using fine bubble diffusers for COD/BOD polishing and P and N removal. Waste-activated sludge will be generated as part of the process.
Secondary DAF	Removal of biomass generated from the Aeration step
Tertiary DAF	Further polishing of solids to meet discharge requirement

1 Process Design

The following section provides a detailed description of each unit operation within the Hydroflux proposed treatment process. Please note that battery limits have been shown by **grey** (Others) and **blue** (Hydroflux) brackets in our PFD.

1.1 Preliminary Treatment



Hydroflux have proposed a preliminary treatment process which consists of two key steps:

- Primary Balance Tank – This can be supplied by Huon similar to WP 1 or by Hydroflux in SS316
- Preliminary Solids separation – A V-bottom DAF to handle both floating and settling solids

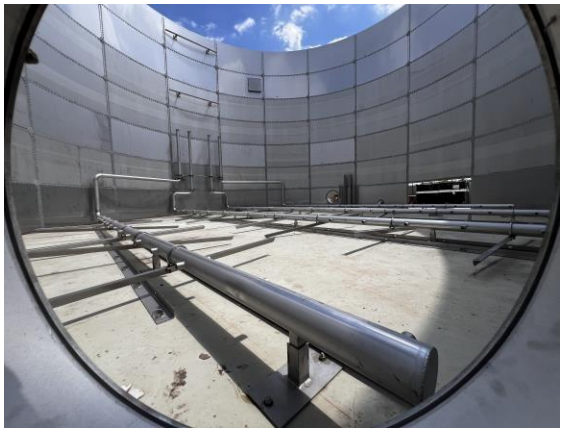
The Balance tank will assist in managing variable feed concentrations and flows can be managed. 500 kL is sufficient to provide approximately 32 hours storage under average load conditions. Mixing of the balance tank minimises settling and breakdown of organic matter in anaerobic conditions.

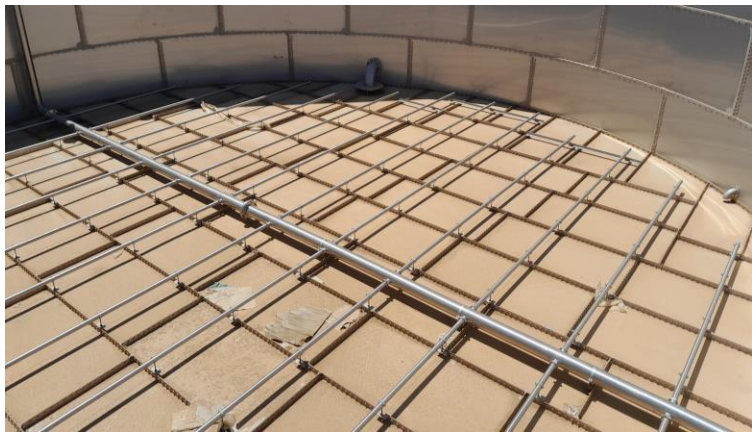
In the event the balance tank is full, or the events in the nursery require additional buffering capacity to manage extra wastewater volume, an additional emergency tank has been provided.

Wastewater from the nursery is transferred into the balance tank, along with water recovered from the emergency tank (when required). The level transmitter mounted on the side of the tank initiates the DAF feed pumps (VSD controlled) and transfers effluent into the V-bottom DAF to remove the bulk solids from the wastewater. The design transfer rate is 35 kL/hr.

A polymer only HD50-V has been proposed to pre-thicken the wastewater collected from the nursery with a nominal wastewater flowrate of 35 kL/hr. Polymer will be dosed inline before the DAF for maximisation of removal through the DAF, which captures both floating and settling solids in a single step. Additional details on the V-DAF are provided in section 5.1.1 below. Installation of a pre-thickener is in line with current nursery wastewater best practice.

Sludge collected from the V-DAF, either through flotation or the bottom screw will be pumped into a sludge tank for dewatering. Treated water will gravity flow to the downstream primary DAF for further solids polishing before the biological treatment system.





Example of the Hydroflux HyGrid installations for fully mixed balance tanks, which are designed to suite a wide range of tank dimensions.

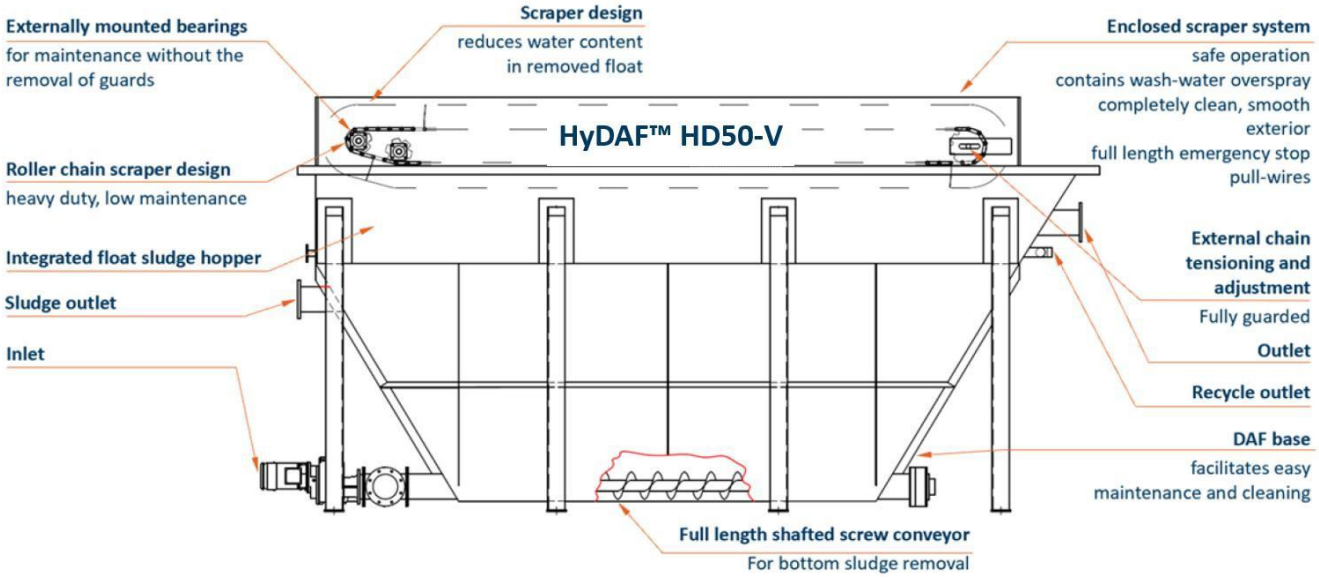
Twin HyDAF HD-100V's installed at a JBS site in Queensland

1.1.1 HyDAF-V Features

The figure below shows a schematic drawing of the HD-50V, which details the features and specifications of the proposed DAF system.

One distinctive feature of the HyDAF V-series is its V-shaped bottom, which allows sludge to be collected and removed not only at the top of the DAF by a conventional scraper system, but also from the bottom through a screw conveyor and helical rotor pump. This is considered highly favourable for meat processing plants where grit and other heavy solids that will settle in any DAF system will be present in the wastewater as it considerably reduces maintenance frequencies.

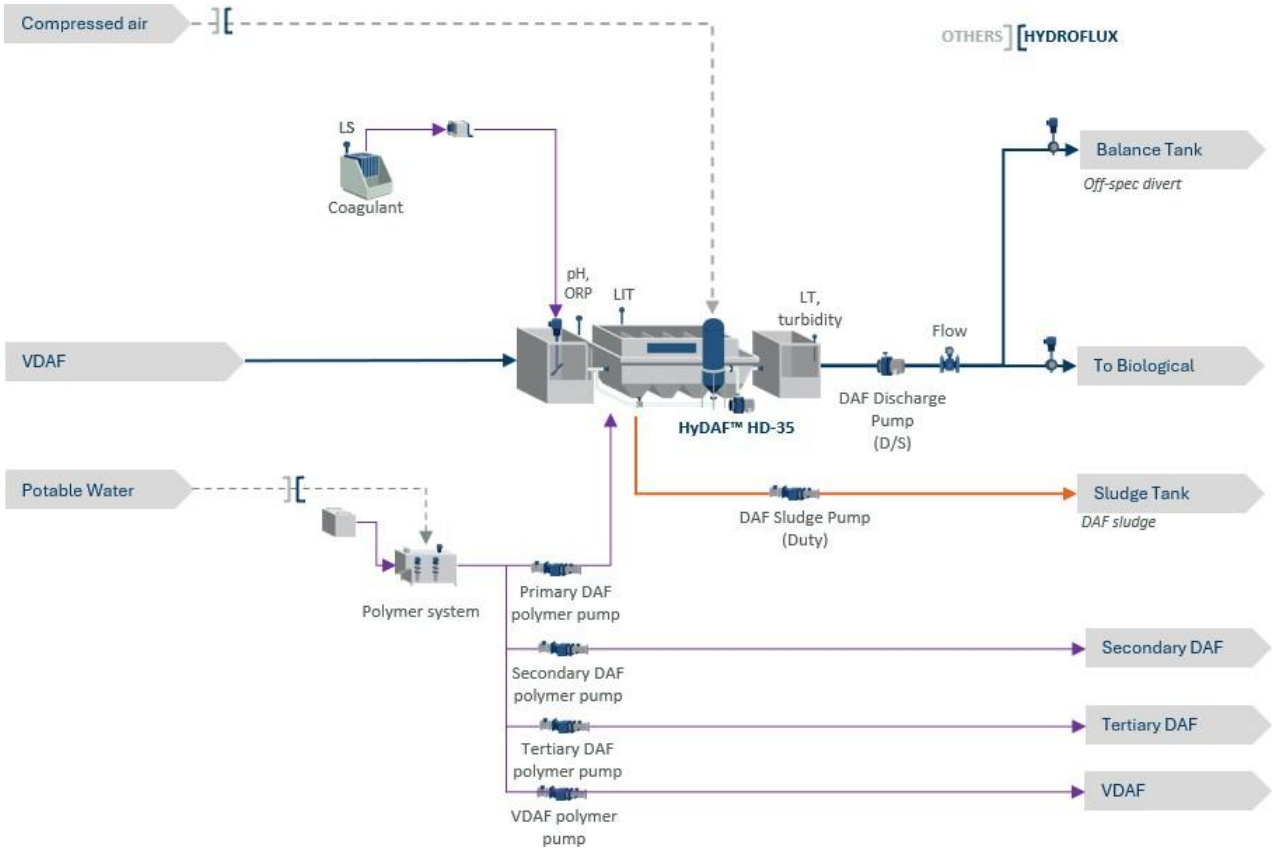
The DAF shall be constructed from SS316 and shall be supplied complete with scraper system and appropriate guarding, scraper drive with electronic shear pin, emergency stop pull-wire, air compressor and dissolved air recycle system.



Features of HyDAF HD50-V

Previously Installed HyDAF V-Range by Hydroflux

1.2 Primary Treatment



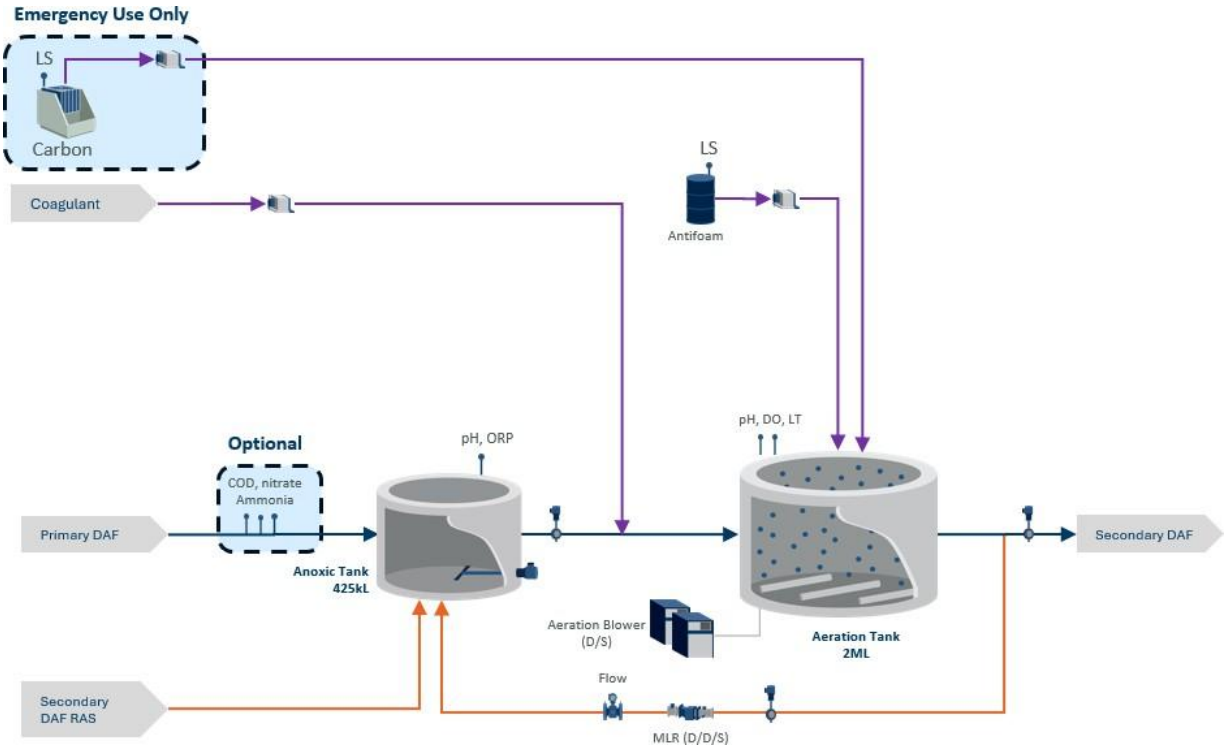
Water from the V-DAF will require final polishing and phosphorus removal before entering the bioreactor. The V-DAF is estimated to remove 90 – 95% of solids. Due to the high nitrogen content of the nursery solids, removing these prior to the bioreactor significantly reduces overall capital and operating cost of the plant to achieve compliance.

A HyDAF-35 DAF unit is proposed for the primary treatment of wastewater according to a nominal flowrate of 35 kL/hr. The HyDAF system is designed to remove ~30% of the BOD load, 90 – 95% of the TSS and FOG load which is present in the wastewater in the form of fish oils.

The primary DAF includes a reaction tank for coagulant addition for precipitation of phosphorus. Flocculated wastewater will enter the HyDAF where it will mix with dissolved air to assist in the flotation of solids. A HydraBLEND polymer unit will be provided to be shared between V-DAF, primary, secondary, and tertiary DAF systems.

Treated water from the HyDAF will flow via gravity into a discharge pumpwell. From here the wastewater will be pumped by a set of duty/standby centrifugal pumps to the biological system for further treatment. Sludge produced by the DAF is pumped into the sludge tank for further dewatering.

1.3 Biological Process – Activated Sludge Process



The removal of dissolved COD/BOD and nitrogen from wastewater requires the compounds to be metabolised by biological cells. Following the detailed review of several potential biological processes, Hydroflux has proposed an activated sludge process for the Whale Point 2 WWTP. The proposed biological activated sludge process consists of two stages: an anoxic and aerobic stage. The anoxic and aeration tanks will be supplied as SS316 panel tanks with a concrete base and a shared access platform with stairs to perform routine maintenance on the reactor instrumentation.

1.3.1 Anoxic System

Treated water from the DAF will be pumped into the anoxic tank. Return activated sludge (RAS) and mixed liquid return (MSLR) are also pumped into the anoxic tank to ensure a population of denitrifying bacteria is continuously maintained within the anoxic tank.

A pre-anoxic has been included in the design of the WTP for denitrification. The anoxic stage can effectively remove excessive nitrogen from the wastewater to comply with the discharge requirement, by biologically reducing nitrates (NO_3) to nitrogen gas.

It should be noted that anoxic systems operate under a low-oxygen environment. This low-oxygen environment is created using an open-top tank design and not introducing any additional air. The pre-anoxic tank will be supplied with side-mounted mixers, along with pH and ORP monitoring instruments to confirm the reactor is operating in the ideal conditions.

We have also included a backup carbon dosing system (either molasses or methanol), however based on the wastewater data provided it is not expected to be utilised. More information on this has been provided in 5.3.3.

1.3.2 Aerobic System

Wastewater will gravity flow from the anoxic tank to the aeration tank for further COD/BOD polishing, nitrification (conversion of NH_3 to NO_3) as well as P and N removal through uptake into the bacterial cells. The aeration tank will be fitted with a series of AEROSTRIP® fine bubble diffusers to introduce air from the bottom of the tank. The AEROSTRIP® supplied in this proposal will be the Q-type, equipped with a stainless-steel frame for the air-diffusing membrane.

Duty/standby blowers will be supplied to ensure an uninterrupted air supply into the aeration tank. These will operate under VSD control, which is linked to a dissolved oxygen sensor in the tank to ensure energy consumption is optimised.

A mixed liquid return (MLR) loop is included in the aerobic system to allow the recirculation of biomass and the nitrates to the anoxic tank for a complete nitrogen removal process. Pumps are included at D/D/S configuration. The loop pumps will operate on a VSD, but the estimated recirculation rate will be approximately 4 – 6x the daily feed flow to maintain the target TN levels in the plant discharge.

1.3.2.1 AEROSTRIP® diffusers

AEROSTRIP® fine bubble diffusers are submerged membrane diffusers used in aerobic biological reactors, such as SBR, MBR, continuous plants for municipal and industrial applications.

AEROSTRIP® technology is manufactured by Aquaconsult, who are based in Austria. Aquaconsult have delivered over 2000 projects in over 40 countries since 1986. Hydroflux is the exclusive Australian Agent for AEROSTRIP® technology.

The key feature to AEROSTRIP® over other types of aeration diffusers is its energy efficiency. This is achieved through the use of a perforated polyurethane membrane that produces 1mm air bubbles. These tiny bubbles provide a high surface area for oxygen transfer and provide more oxygen into the water stream.

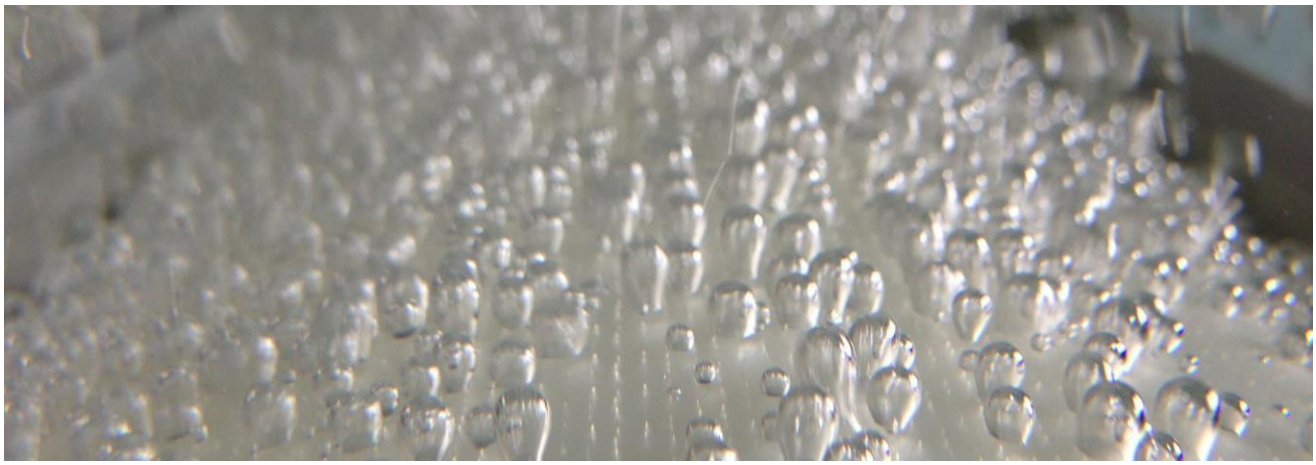
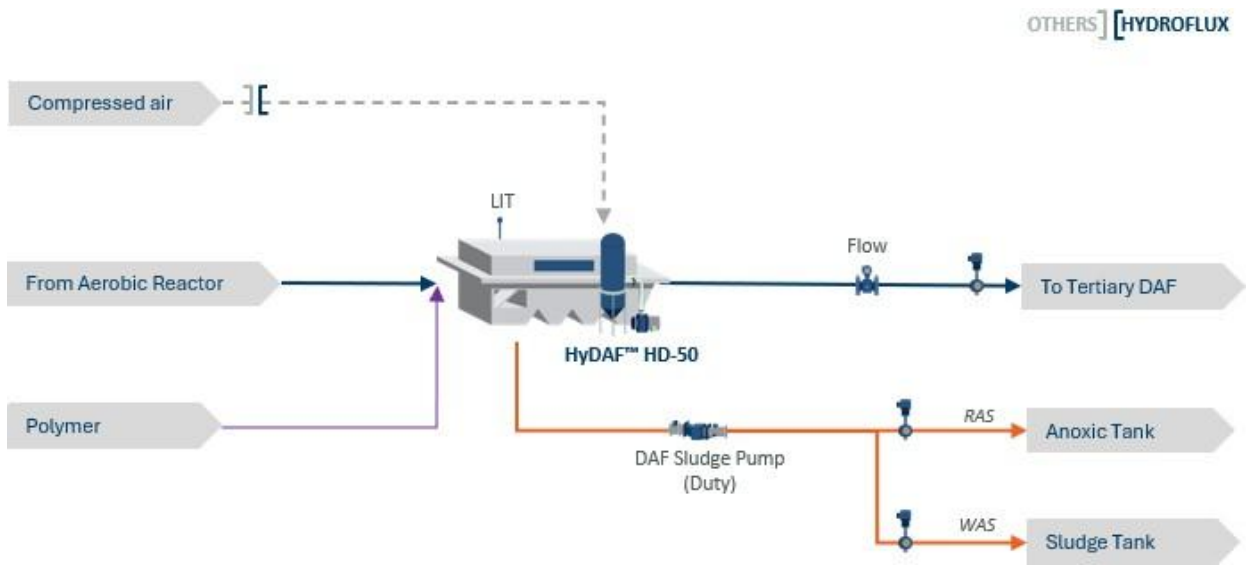


Figure 5.1 Visual Representation of the AEROSTRIP® operation

1.3.3 Carbon Dosing

An IBC dosing system is included to supply carbon into the anoxic reactor during periods of low wastewater generation. This will help maintain the biomass ready for wastewater during periods where no food is provided. The addition of carbon can be completely controlled by the operator to enable them to activate the dosing in periods of low wastewater generation.

1.4 Secondary DAF



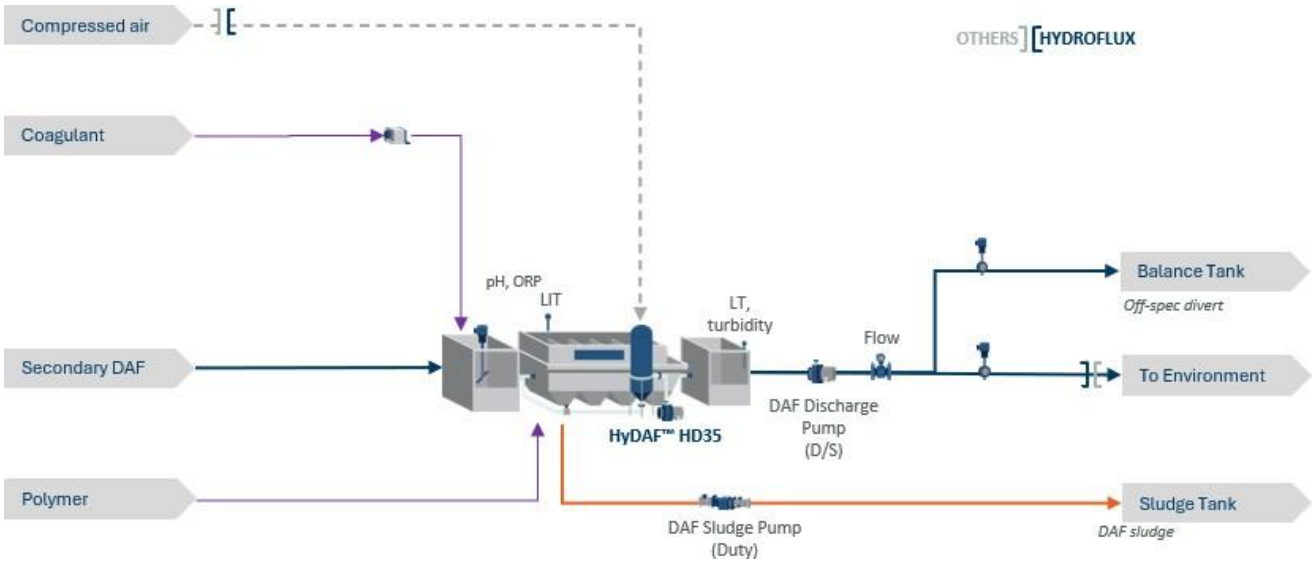
Biologically treated wastewater will gravity flow from the activated sludge aeration reactor into a secondary DAF for the removal of biomass accumulated within the biological treatment. A polymer-only HyDAF-50 unit is proposed according to a nominal flow rate of 50 kL/hr.

A helical rotor pump has been installed to pump sludge from DAF to be recycled back into the anoxic tank, also known as return-activated sludge (RAS). As needed, excess sludge will be diverted and recycled back into the sludge tank (WAS stream) for dewatering as per system requirements to keep the MLSS concentration stable.

It is recommended that the secondary DAF be installed on an elevated concrete plinth to enable gravity discharge to the tertiary DAF. This design eliminates the need for a discharge pump well and associated pumps within the secondary DAF.

If an elevated concrete plinth is not feasible or preferred, the treated water from the secondary DAF can be directed to a discharge pump well or sump before being pumped to the downstream tertiary DAF.

1.5 Tertiary DAF



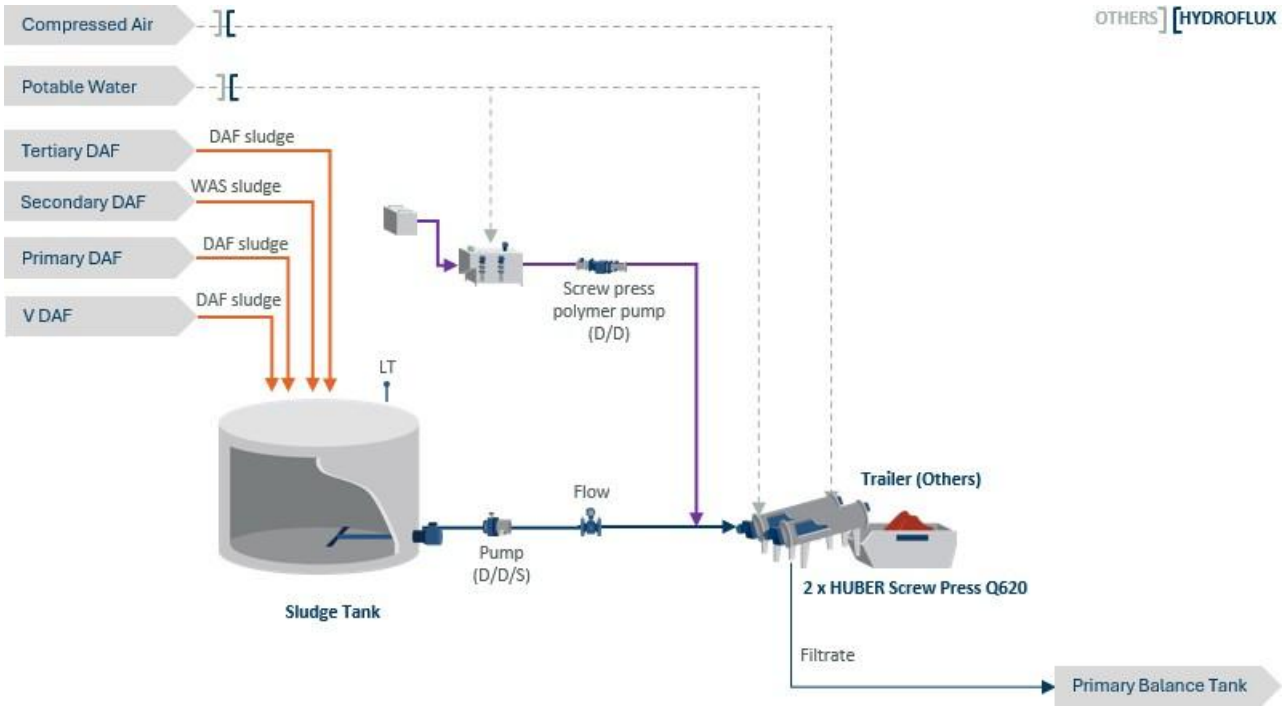
A final tertiary HD-35 will be required to further polish TSS levels to < 20 mg/L. Water will gravity flow from the secondary DAF into a reaction tank for coagulation and flocculation.

Similar to the primary DAF, flocculated wastewater will enter the HyDAF where it will mix with dissolved air to assist in the flotation of solids. Most of the suspended solids and oil/grease will be removed in the DAF unit and stored in a DAF sludge hopper, from where it will be pumped to the sludge handling system.

The treated water will overflow into a stainless-steel pump well before being pumped for discharge by a set of duty/standby pumps. Off spec water will be diverted back into the primary balance tank.

Hydroflux previous HD50 and HD35 installations

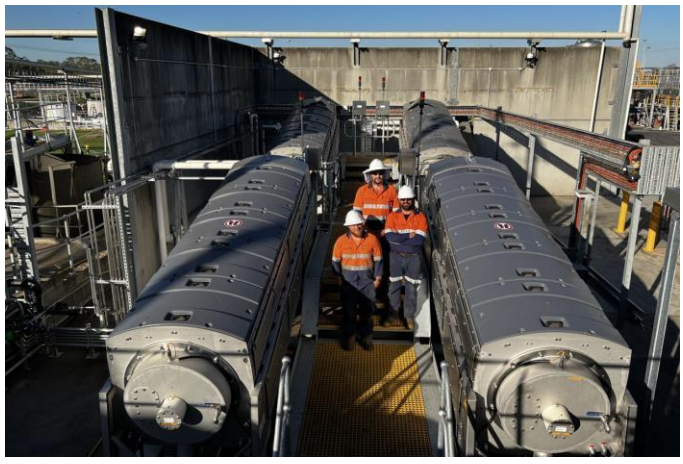
1.6 Dewatering



Sludge will be collected in a 200 kL roofed SS316 storage tank, which is designed to offer one day of sludge storage. From there, it will be pumped through HUBER screw presses for further dewatering, producing a dry cake for solids disposal. The tank will be equipped with side-mounted mixers to maintain homogeneity, prevent the breakdown of organic matter, and mitigate sludge solidification. It will also feature level-monitoring instrumentation for effective operation.

For dewatering, two HUBER Q620 units have been nominated for an intended dewatering operation of 10 - 12 hours per day. Before entering the screw presses, sludge will be dosed with polymer to enhance dewatering performance. A HydraBLEND™ polymer system, similar to those installed at Whale Point and Forrest Home, will be supplied to prepare and deliver flocculant to the presses.

The dewatered sludge (dry cake) will be transported offsite for disposal by third parties, while the filtrate from the screw press will be recycled back into the primary balance tank to be reprocessed.



Previous HUBER screw press installations for with the smallest machine (Q280) and, Forest Home and in Queensland with 4x largest machine ***(Q800)***

1.6.1 Sludge Management

The combined Whale Point 2 sludge removed from the site is expected to be in the order of 10 T per day. The dewatering system will operate for a total of 10 - 12 hours per day to minimize the need for sludge management to occur at night.

1.6.2 HUBER Screw Press

HUBER's Screw Press technology has become the sludge dewatering technology of choice by many Water Authorities and Industrial customers across Australia and New Zealand. The machines provide equivalent performance to decanter centrifuges but with only 10% of the power demand. This equates in less truck movements offsite with significant savings in energy and operating costs.

The HUBER machines also do not require constant supervision and regular overhauls of the screw which is common for many alternative dewatering multiplate screw presses (also referred to as volute dehydrators).

HUBER's Screw Press is entirely fabricated from stainless steel, including the main case, internal drums and screw.

Australian installations have demonstrated the outstanding performance of these units and their reliable operation, including at other Hatchery facilities in Tasmania.

Service and maintenance are provided by Hydroflux Utilities Pty Ltd the aftermarket division of the Hydroflux Group, who provide breakdown, service, maintenance, and plant optimisation services. Hydroflux Utilities currently has local service representatives in Tasmania supporting existing installations.

Example twin HUBER Q440's for activated sludge dewateri

1.7 System Design Hydraulic Retention Time

The tanks are designed to have the following capacities as shown in Table 5-1 below. The hydraulic retention time under average wastewater conditions for Whale Point has been highlighted below.

Table 5-1 Activated Sludge - Tank Sizes

Tank	Unit	Capacity (kL)	Average HRT (Hrs)
Balance Tank	kL	500	32
Emergency Storage	kL	750	48
Pre-Anoxic Tank	kL	425	27
Aeration Tank	kL	2,000	130
Sludge Tank	kL	200	72

1.8 System Design Redundancy

The wastewater treatment plant is designed with the following redundancy to ensure ongoing operation and compliance with the discharge criteria. The redundancies built into the system include:

- 500 kL balance tank to manage daily fluctuations in flow and wastewater quality with >1 day storage capacity under average conditions
- 750 kL emergency tank to provide additional 2 day storage capacity under average conditions
- Overall process designed to handle 90th percentile daily wastewater flows form the nursery
- Duty/standby pumps for the main process train, screw press feed pumps and the mixed liquor return pumps
- Redundancy in the main aeration tank blowers (duty/standby)
- Common pumps and equipment used across the dissolved air flotation systems
- Redundancy in the sludge dewatering equipment, utilizing two identical machines to process duty/standby under average conditions
- Level sensors and additional redundancy high level switches to protect against tank overflows
- Discharge monitoring for pH, oxidation reduction potential, turbidity, temperature and flow to monitor continuous discharge compliance, with out-of-spec wastewater returned to head of works for re-processing
- Fail-safe normally closed discharge valve to prevent unintended release during power outages
- Back-up carbon dosing system provided to maintain activated sludge process health during periods of low biomass loading within the nursery