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Acronyms and Abbreviations

Acronym	Definition
AC	Activated Carbon
ADGC or DG	Australian Dangerous Goods Code, or Dangerous Goods
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AS	Australian Standard
ASS	Acid Sulfate Soil
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes and Napthalene
CCO	Chemical Control Orders
CEMP	Construction Environmental Management Plan
CIV	Capital Investment Value
COPC	Contaminants of Potential Concern
DAF	Dissolve Air Floatation
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPL	Environment Protection Licence
FRNSW	Fire and Rescue NSW
FTE	Full Time Equivalent
GAC	Granular Activated Carbon
GGBFS	Ground Granulated Blast-furnace Slag
GIA	General Immobilisation Approval
HVAC	Heating Ventilation and Air Conditioning
IBC	Intermediate Bulk Container
LDCP	Liverpool Development Control Plan (2008)
LLEP	Liverpool Local Environmental Plan (2008)
NATA	National Association of Testing Authorities
NCC	National Construction Code
NEPM	National Environment Protection Measure
NSW EPA	NSW Environment Protection Authority
OEMP	Operational Environmental Management Plan
OPC	Ordinary Portland Cement
PAH	Polycyclic Aromatic Hydrocarbons

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PASS	Potential Acid Sulfate Soil
PCB	Polychlorinated Biphenyls
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PIRMP	Pollution Incident Response Management Plan
PM	Particulate Matter
PMF	Probable Maximum Flood
POP	Persistent Organic Pollutants
RRE	Resource Recovery Exemption
RRO	Resource Recovery Order
SIA	Specific Immobilisation Approval
TIA	Traffic Impact Assessment (prepared by PeopleTrans)
tpa	Tonnes per annum
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
UIN	Unique Identification Number
VOC	Volatile Organic Compound
WTF	Waste Treatment Facility
WWTP	Waste Water Treatment Plant
SAQP	Sampling Analysis and Quality Plan
GSW	General Solid Waste

1 Proposal description

This section provides a summary of the existing and proposed development at the Site at 9-13 Whyalla Place, Prestons NSW. This chapter includes a high-level overview of the proposed construction and operation at the Site over two stages, and a review of the technology and processes involved.

1.1 Proposal overview

Hi-Quality Waste Treatment Services Pty Ltd (the Applicant) are proposing to construct and operate a Waste Treatment Facility (WTF) for the receipt, treatment and storage of contaminated soils, water and sludges at their site at 9-13 Whyalla Place, Prestons NSW (the Site). Waste received at the facility would include:

- Packaged waste
- Acid sulfate soil (ASS) and potential acid sulfate soil (PASS)
- Contaminated liquid and solid wastes.

Treatment methodologies for wastes include:

- Physical screening
- Chemical separation
- Chemical oxidation
- Bioremediation
- Immobilisation.

The Applicant is proposing to undertake Site upgrade works, to optimise the existing site to allow the processing and treatment of the waste streams listed above, with a throughput capacity of up to 270,000 tonnes per annum (tpa). The Site upgrade works would include installation of weighbridges, extension of the existing building, excavation of storage pits, construction of internal material storage bunkers, and installation of plant.

The Applicant proposes to undertake the works over two stages:

Stage 1:

- **Construction:** Construction works including:
 - Extension of the warehouse building
 - Installation of weighbridges
 - Internal fit out of the warehouse building, including installation of push walls and material bays
 - Installation of heating, ventilation and air conditioning (HVAC) and firefighting systems
 - Reconfiguration of the office and amenities block to add staff decontamination facilities, laboratory and office spaces.

Stage 1 construction would occur over approximately nine months. Refer to Section 1.3.1 for further detail on the timing of construction.

- **Operation:** Stage 1 operations would include:
 - Storage, classification and transfer of contaminated packaged waste and shredding of non-contaminated waste.
 - Treatment of contaminated soils by bioremediation and immobilisation under both general and specific immobilisation approvals.
 - Receipt and treatment of ASS and PASS.

- Soil immobilisation may be undertaken from time to time during Stage 1, however would be the subject of a Specific Immobilisation Application and Approval. Refer to Section 1.1.2 for further detail on licencing requirements.

Stage 1 operations would occur over approximately two years, before commencement of Stage 2.

Stage 2:

- **Construction:** Final construction works would be undertaken during Stage 2 and would include
 - Internal fit out of the building areas that would accommodate the Stage 2 operations including
 - Installation of wastewater treatment equipment including tanks, pits, silos, filters, pumping and dosing systems

Stage 2 construction would occur over approximately four months. Refer to Section 1.3.1 for further detail.

- **Operation:** Operation in Stage 2 would include those identified in Stage 1 and expand to include liquid waste and drill mud processing, wastewater treatment, and chemical oxidation. Full site operations are detailed in Section 1.4.

It is expected the WTF would operate as Stage 1 for a period of up to two years before construction and operation of Stage 2.

1.1.1 Existing site

The Site is located at 9-13 Whyalla Place, Prestons, and is legally identified as Lot 103 of DP 866530 in the Liverpool Local Environmental Plan (LLEP) 2008.

The Site consists of a single building structure with 4,100 metres squared (m²) of warehouse floorspace and 910 m² of office and administration space. The Site features 2,850 m² of external hardstand, of which 348 m² is currently utilised for light vehicle parking (52 spaces) and 2,490 m² for circulation and storage. The spring height (intersection of wall plane and roof) of the building is 11.7 metres (m), and the ridge height is 12.2 m. The building features two roller shutter doors at the northern end of the building and one roller shutter door at the southern end.

The Site frontage at Whyalla Place contains landscaped garden beds with a mixture of exotic and native plantings.

The Site features vehicle and pedestrian access from Whyalla Place and has two driveways.

The existing Site layout is available in Figure 1-1.

The Site is located on industrially zoned land in the Prestons industrial area. The location of the Site in context with surrounding land use is available in Figure 1-2.

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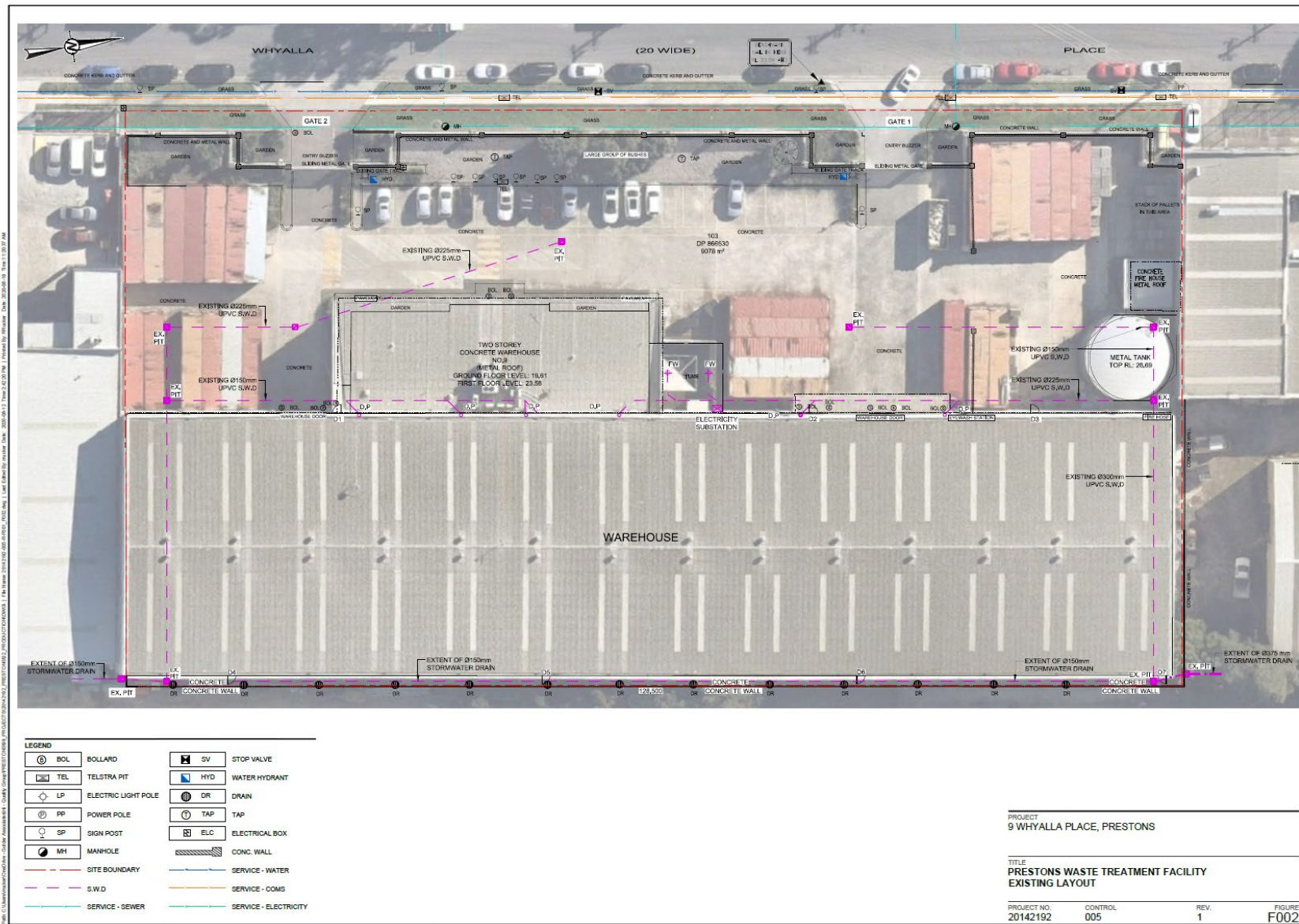


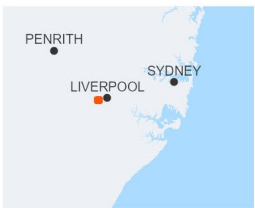
Figure 1.1: Existing Site layout (source: Golders EIS)

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- Legend
- Site boundary
 - Residential area
 - ~ Watercourse



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 Coordinate System: GDA2020 MGA Zone 56
 Date issued: August 17, 2022
 Imagery: Heamap



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Figure 1.2: Site in context with surrounding land use

1.1.2 Approvals, licences and permits

The following approvals, licences and permits would be obtained prior to establishment and operation of the Site:

- Environment Protection Licence (EPL): As the proposed operations at the Site (contaminated soil treatment, resource recovery, waste storage and waste processing (non-thermal treatment)) involve scheduled activities under Schedule 1 of the *Protection of the Environment Operations Act 1997* (PEOE Act) an EPL would be required from the NSW Environment Protection Authority (NSW EPA).
- General and Specific Immobilisation Approvals (GIA, SIA): In accordance with Part 10 of the *Protection of the Environment Operations (Waste) Regulation 2014*, Hi-Quality will obtain and implement general and specific immobilisation approvals for the treatment, immobilisation, testing and validation, and disposal of waste streams where it is not possible to reuse, recycle or reprocess the waste (i.e. where there is no alternative to immobilisation)
- Trade wastewater approval: Wastewater that has been treated to meet Sydney Water trade wastewater standards would be discharged to sewer. Hi-Quality will apply for a trade wastewater approval from Sydney Water prior to any connection to sewer at the Site; and
- Section 73 Compliance Certificate under the *Sydney Water Act 1994*: Sydney Water have advised that a compliance certificate will be required for the Proposal under Section 73 of the *Sydney Water Act 1994*. The compliance certificate will require the submission and approval of building plans for approval by Sydney Water.

1.2 Built form and proposed works

The following sections outline the built form proposed for the Proposal and the works associated with construction of the Proposal.

1.2.1 Connection to Whyalla Road

The Site has features two existing 8-metre-wide driveways to Whyalla Road which would be retained under the proposed site layout. It is proposed that a third driveway is constructed for light vehicles only, allowing for direct access to the carpark, separated from heavy vehicles. The existing two driveways would be retained for heavy vehicles only, to provide single direction traffic flow at the Site. Trucks would enter the Site at the northern driveway and exit the Site at the southern driveway.

1.2.2 Installation of weighbridges and weighbridge control office

Three weighbridges would be installed at the Site to facilitate a single-direction heavy vehicle flow of traffic. A dual-lane weighbridge would be installed within the warehouse building at the northern building access, and a single lane weighbridge would be installed exterior to the building at the southern roller shutter doors.

The weighbridges would be 19 m long and controlled from a weighbridge control space located within the office and amenities building. The weighbridge control space is to be located adjacent to the manager's office. Weighbridges would feature boom gates and weight display.

Weighbridge construction would require minor ground-breaking, laying of hardstand, installation of weighbridge platforms and ancillary structures (boom gates and weight display).

The location of the weighbridges and the control office is identified in Figure 1-6.

1.2.3 Warehouse building extension

An extension to the western façade of the existing warehouse building is proposed to accommodate the wastewater treatment plants, weighbridges, wheel wash, external electrical room, sprinkler room, and the soil treatment bays.

The building extension would occur during Stage 1 of the Proposal, and include extending the warehouse building from the existing northern roller shutter doors to the office and amenities block, and extending the northern and southern ends of the building, as illustrated in Figure 1-6.

The warehouse building extension would increase the internal floorspace of the Site by 1,300 m², to a total of 6,400 m². The roof height of the proposed building extensions would be 5.7 m. The Site would still maintain a setback of 10 m from Whyalla Place, in compliance with the Liverpool Development Control Plan (LDCP) 2008.

Existing office space and amenities within the existing office building would be utilised by the Proposal. Minor internal reconfiguration would occur to the existing ground floor office space to incorporate offices, staff decontamination facilities and laboratory. As part of the warehouse building extension works, the electrical control room would be relocated to the outside of the building.

A flood risk and stormwater management memo has been prepared by Arcadis in support of the Proposal, in response to comments made by Liverpool City Council on the EIS. Under the LDCP, the Site is suggested to be 'concessional development', where the existing floor level is lower than the Probable Maximum Flood (PMF) flood level.

The proposed redevelopment aims to maintain the existing building floor levels and ensure any building extensions remain above the 1% Annual Exceedance Probability (AEP) flood level of 23.1m Australian Height Datum (AHD). Site survey information indicates the existing warehouse floor levels range from 23.5 to 23.6m AHD. Any extension to the existing buildings or modifications of the Site fences/exterior walls will be constructed with flood compatible building components below the PMF level, with an engineer's report to be provided demonstrating they can withstand the forces of floodwater, debris and buoyancy up to and including the PMF level. Any on site parking will be located above the 1% AEP flood level of 23.1m AHD.

The reconfigured office layout and staged building designs are shown in Figure 1-6.

1.2.4 Internal trafficable area

On completion of construction, internal to the building would be 6,400 m² of trafficable floorspace for vehicle loading, unloading and circulation.

A wheel and truck wash would be installed adjacent to the southern roller shutter doors for vehicle cleaning prior to leaving the Site. Concrete in the wheel and truck wash would be treated with a performance-based sealant to prevent impregnation of contaminants into the concrete matrix.

Pedestrian walkways and shared spaces would be identified through floor markings in bright colours.

1.2.5 Internal staff and visitor parking

It is proposed that 40 spaces and one disabled parking space would be provided for light vehicles. Light vehicle parking and circulation at the Site would be separated from heavy vehicle movements by creating a third driveway for light vehicles only, minimising traffic conflicts at the Site.

Construction works related to construction of the light vehicle parking area would involve ground-breaking works, laying of hardstand and asphalt, ground marking, and landscaping works. Standard construction sediment and erosion controls would be implemented to manage water quality impacts.

1.2.6 Urban design and landscaping

In association with the upgraded light vehicle parking area, an additional area for landscaping would be installed at the northern frontage of the Site. Planting species would be chosen to be consistent with native vegetation in the local area. Existing plantings would be retained where feasible.

1.2.7 Air quality management infrastructure

The HVAC system design has been based on the ultimate building configuration and required a number of air exchanges to provide fresh air and for human comfort, as well as maintaining a negative air pressure within the building to minimise fugitive air emissions.

The HVAC system would be installed during construction of Stage 1 to maintain air quality conditions for Site staff and the surrounding environment. The HVAC system would include:

- Smoke exhaust intakes
- Exhaust intakes above the material bays
- Outside air intakes, external to the building
- Installation of strobic air fans and ducting
- Fabric hoods / exhaust hoods above the material bays to be installed as the bays become operational
- Exhaust inlets (internal) and air intakes (external) to the northern building extension (for the wastewater treatment plant compartment)
- A high-pressure centrifugal fan mounted on top of a cyclone filter unit for Fire Compartment 1 within the existing warehouse building structure.

The HVAC system would feature Particulate Matter (PM) filters and Activated Carbon (AC) filters to remove Volatile Organic Compounds (VOCs) and odours.

Following filtration, air would be discharged from the Site using vertical strobic fans at 11.7 metres above ground level.

Generally waste delivery would be a low emission generating activity, particularly when relating to packaged wastes. During these times the fans would be turned off to manage air quality within the warehouse building. The fans would operate higher flow rates when dusty or volatile materials are being delivered, handled or treated. Appendix B of Appendix E and Appendix F of the EIS provide more detail on the proposed HVAC system.

1.2.8 Water management infrastructure

Stormwater and leachate management systems would be installed onsite. These systems would be separated and maintained to prevent the cross contamination of stormwater with leachate. Standard sediment and erosion controls would be implemented to minimise impacts to water quality during installation of the rainwater tank and leachate pits.

Stormwater

Opportunities for the installation of rain water tanks to collect and reuse rainwater would be investigated during detailed design. This tank would be located underneath the landscaped area which runs along the

boundary of the Site with Whyalla Place. Measures to maintain water quality at the Site and at stormwater discharge points include:

- All waste unloading, treatment, and loading would be undertaken within the WTF building
- Trucks would remain covered until unloading within the facility
- The proposed stormwater management system would ensure complete segregation of stormwater runoff, leachate and treated water at the Site
- All stormwater collected from the Site's concrete hardstand is intended to run through an interceptor trap prior to leaving site. The interceptor pit would have a valve that can be manually closed to prevent spills going off site.
- Where feasible, rainwater would be harvested at the Site for irrigation and dust suppression purposes, reducing the requirement for potable water from utility connections.

Leachate

- Stage 1: Leachate collection pits would be installed within the building to collect potentially contaminated runoff and transferred to one of two 50KL temporary holding tanks, with PFAS leachate to be stored in a separate tank. A connection to sewer would be installed following successful application for a trade wastewater licence from Sydney Water, should collected leachate meet the requirements of the trade wastewater licence it will be discharged to Sydney Water sewer. However, any leachate that does not meet the trade waste criteria set by Sydney Water would be tankered offsite for disposal at an appropriately licenced site. The leachate collection pits would be dug into the ground and would involve ground-breaking internal to the warehouse building.
- Stage 2: Leachate would be pumped from leachate collection pits to a holding tank within the onsite the WWTP and following, treatment to the Sydney Water Trade Wastewater standards, would be discharged to sewer. No leachate would enter the stormwater or rainwater collection systems.
- Stage 1 and 2: Leachate would be pumped from the Drill Mud pits and Sludge and pretreatment pits into the temporary holding tanks (Stage 1) or the WWTP (Stage 2) as required
- Leachate controls:
 - Details of bunding and wastewater treatment infrastructure proposed on site is available in Figure 1-3.
 - Bunding would be installed to contain leachate, and as necessary, firefighting water, spills and other liquids. The bunding would consist predominantly of drive-over bunding at the doorways and in front of bays, with sufficient capacity to contain one tanker load of liquid (20,000 L). The primary containment would be capable of containing hydrants operating at 30L/s for a minimum of four hours, high hazard sprinklers operating for a minimum of two hours, and drenchers operating for a minimum of two hours
 - Ten leachate collection pits of approximately 0.2 m³ would be installed and constructed from concrete and waterproofed appropriately. Submersible pumps will be located in each collection pit and leachate will be transferred to the temporary holding tank for Stage 1 or the WWTP for Stage 2 using temporary flexible hosing as required
 - Separately, the WWTP compartment would be bunded in accordance with Australian Standards

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- Legend**
- ▭ Site boundary
 - Building extension
 - Water treatment infrastructure**
 - Bunding
 - Wastewater treatment plant (Stage 2)
 - Pit
 - Temporary holding tank – non-PFAS (Stage 1)
 - Temporary holding tank – PFAS (Stage 1)
 - Water tank
 - Drive over bunding for vehicle access
 - Bay (Stage 1)
 - Bay (Stage 2)
 - Pit (Stage 1)
 - Entry point with step over bunding



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 Imagery: Nearmap June 2022



Date: 27/03/2023 Path: C:\Users\gcaz2278\ARCADIS\30135841 - Prestons Waste RIS - GIS\A_Current\B_Maps\WhyallaPI_Preston_v14.aprx

Figure 1.3: Site bunding and wastewater treatment compartment (indicative subject to detailed design)

A truck wheel wash would be installed at the heavy vehicle exit at the southern roller shutter doors, internal to the warehouse building. The wheel wash would include concrete that has been treated with a performance-based sealant, to prevent impregnation of contaminants into the concrete matrix. Figure 1-4 provides an example of the type of wheel wash system that would be included in the Site design.

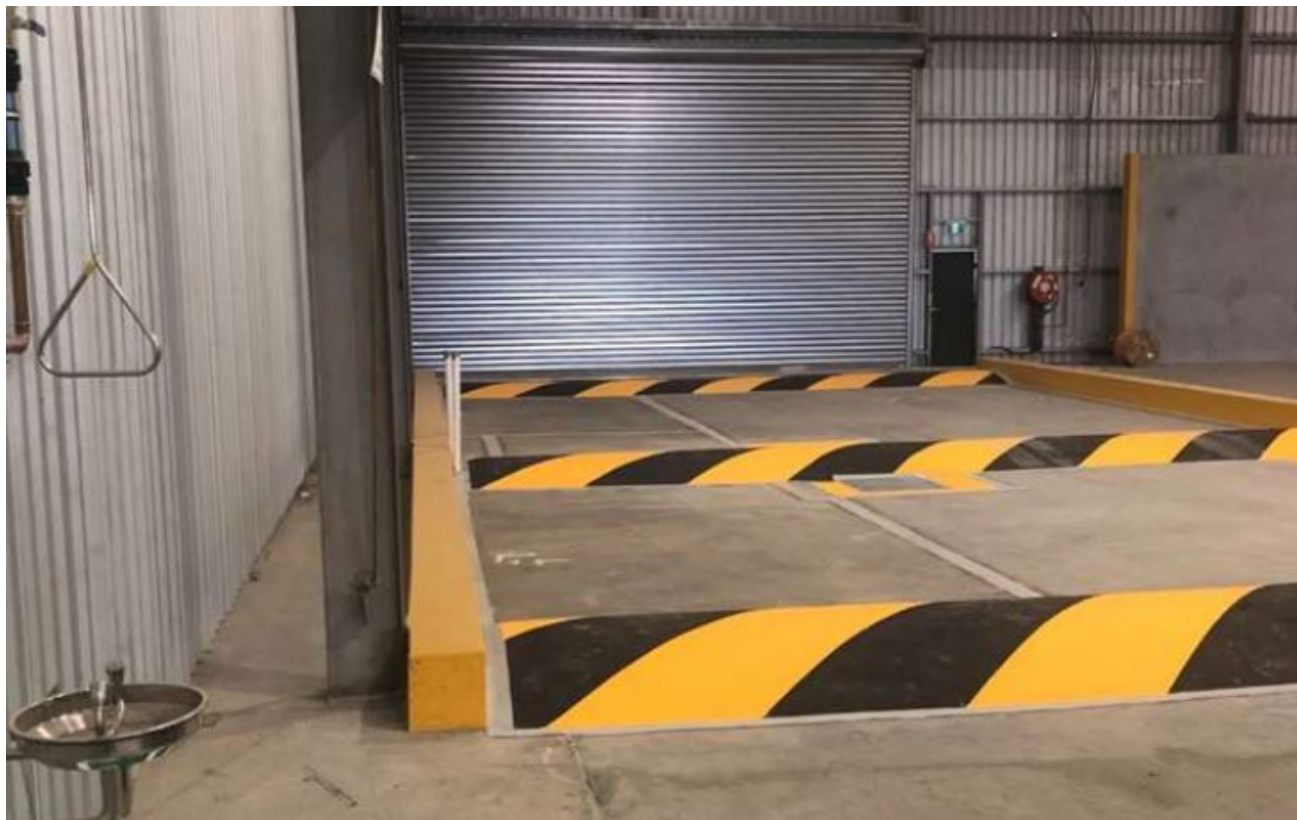


Figure 1.4: Example image of wheel wash configuration

1.2.9 Fire infrastructure and management

Fire protection and suppression infrastructure are integrated into the proposed building design.

The system consists of the following measures:

- Portable fire extinguishers provided throughout the building (in accordance with the National Construction Code (NCC) and selected, located and distributed in accordance with AS 2444:2001)
- A dedicated smoke exhaust system in Fire Compartment 1 (within the existing warehouse building) and Fire Compartment 3 (the southern warehouse building extension) would be implemented to comply with the NCC, with a minimum operating duration of at least two hours
- Operational management processes that would include:
 - Stockpile management in accordance with the Fire Rescue NSW (FRNSW) *Fire Safety in Waste Facilities* Guidelines
 - Management plans for the Site detailed in the Operations Environmental Management Plan (OEMP) and sub-plans.
 - Regular testing and maintenance of fire safety systems (in accordance with Australian Standard (AS) 1851).

Prestons Waste Treatment Facility – Updated Project Description

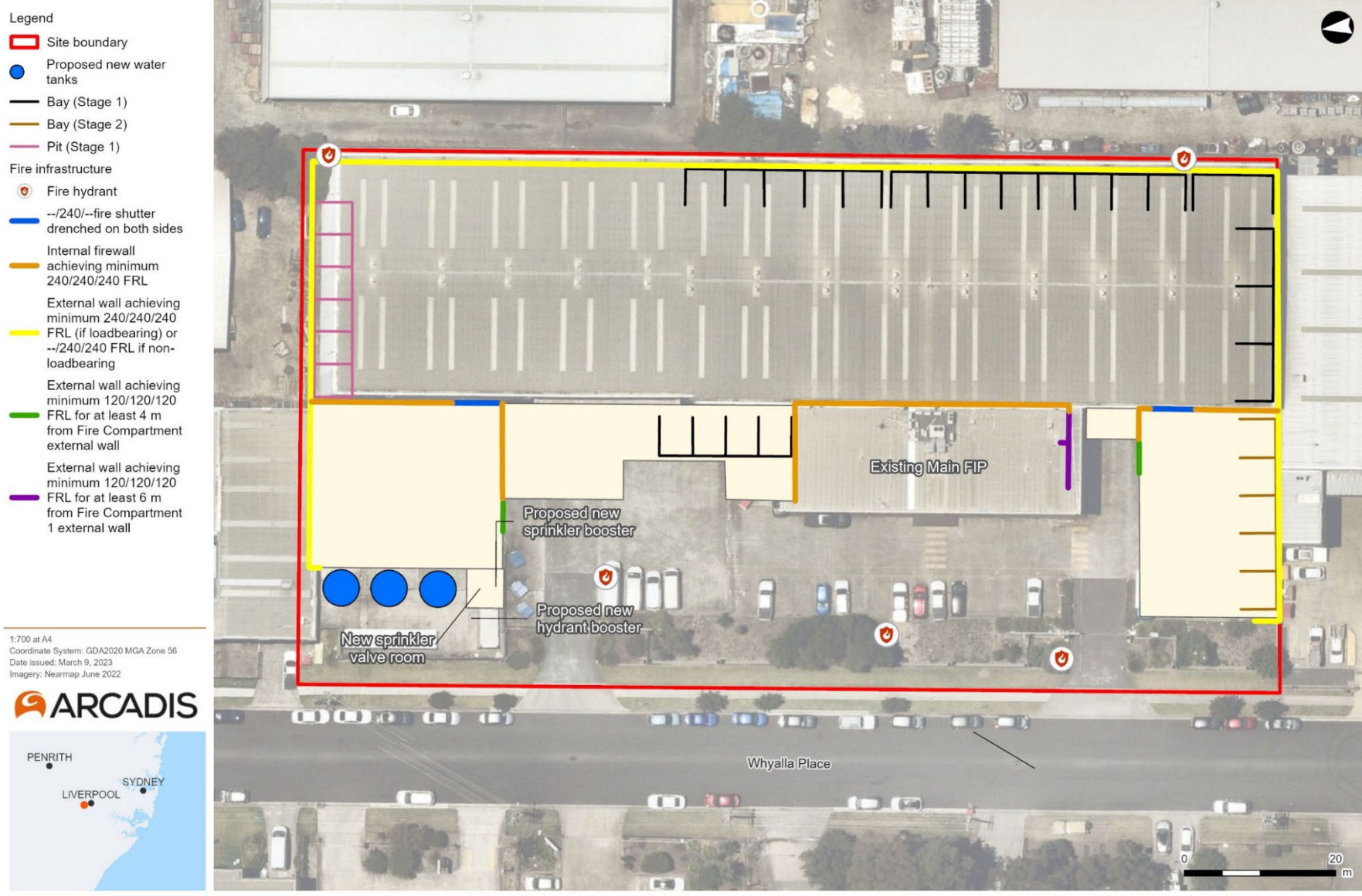


Figure 1.5 Proposed fire safety measures (indicative subject to detailed design)

1.2.10 Utility connections

Existing connections to all other utilities (i.e. with the exception of the connection to Sydney Water’s sewer) would be maintained under the Proposal.

1.3 Construction

1.3.1 Construction timing

The Proposal comprises of two construction stages, separated by approximately two years of Stage 1 operation. Table 1-1 identifies which Stage of the Proposal each built element would be associated with.

Table 1.1: Construction stage works and duration

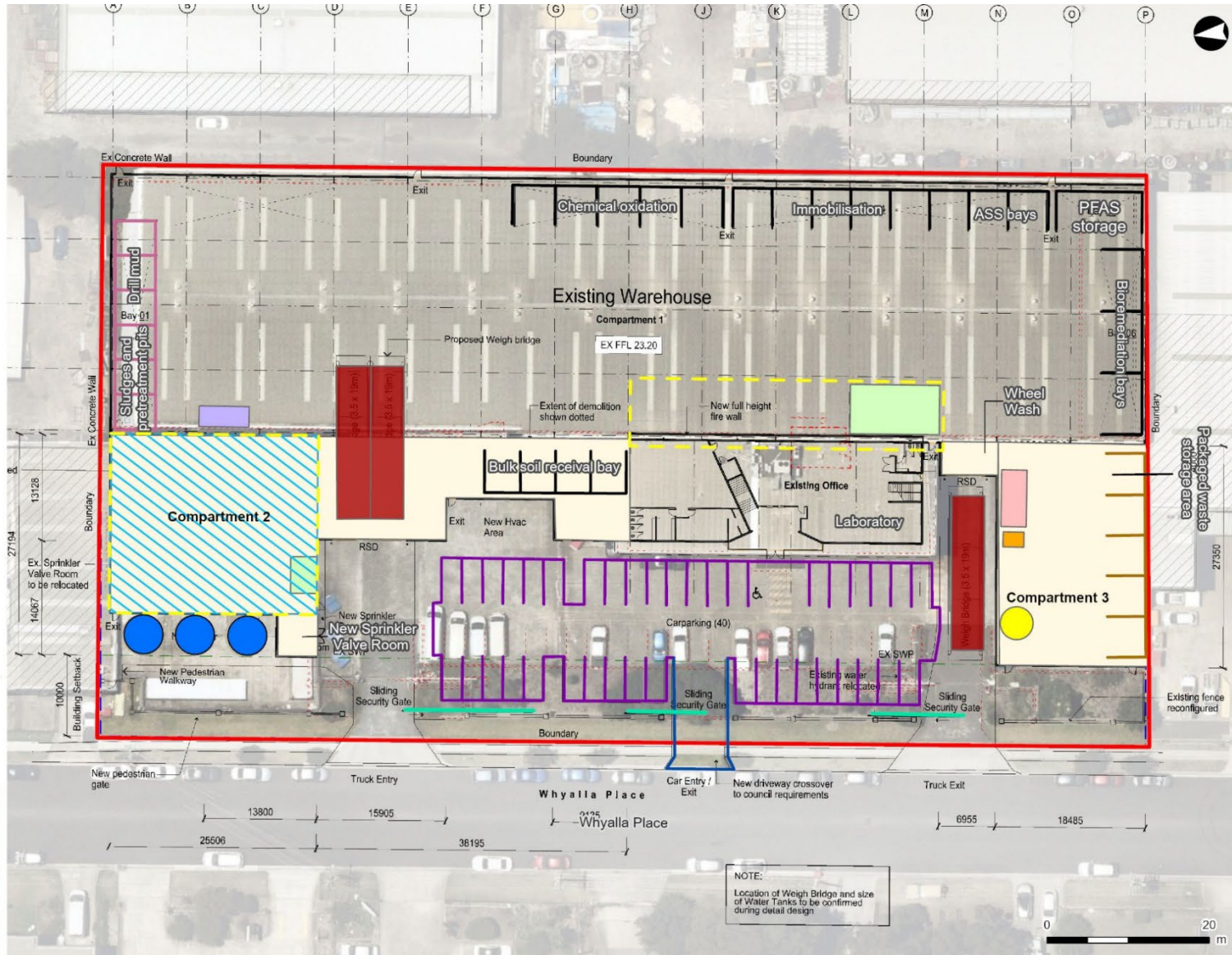
Stage	Works	Duration (approx.)
Stage 1 9 months total	Minor demolition of a portion of the existing slab in the carpark, minor demolition of portions of walls of the existing warehouse	1 month
	Minor earthworks for footings, slabs, drainage, landscaping etc.	1 month
	Construction of the new weighbridges	1 month
	Construction of a new driveway and gate, involving minor earthworks and concrete works	1 month
	Extension of the warehouse building from the existing northern vehicle access to the office and staff amenities block. The building extension would be constructed from prefabricated concrete panels and would include: <ul style="list-style-type: none"> • Installation of a dual weighbridge at the vehicle access point to the building • Replacement of the existing two roller shutter doors with a single roller shutter door. • Building extension to the warehouse building at the northern and southern ends of the building to provide space for the wastewater treatment plants (warehouse northern building extension) and truck wheel wash, soil treatment bays, sheer mixer and cement silo (southern warehouse building extension). Refer to Figure 1-6 for extent of the building extension.	2 months
	HVAC system upgrade: A heating, ventilation and air conditioning system would be installed within the existing building. The HVAC system would include smoke exhaust intakes, exhaust intakes above materials bays, outside air intakes external to the building, installation of strobic air fans and ducting, and fabric hoods above the material bays (to be installed prior to operation of the bays) and a high-pressure centrifugal fan mounted on top of a	2 months

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Stage	Works	Duration (approx.)
	cyclone filter unit for compartment 1 (main existing building structure).	
	Upgrade of the sprinklers, tanks and firefighting infrastructure on site.	1 month
	Internal fit out: Installation of push walls and material bays, internal leachate drainage, truck and wheel wash, office reconfigurations, staff decontamination facility and laboratory.	1 month
Stage 1 operations (approx. two years)		
Stage 2 4 months total	Installation of wastewater treatment equipment including tanks, pits, silos, pumping and dosing systems, which would be installed in the northern warehouse building extension area.	3 months

Prestons Waste Treatment Facility – Updated Project Description

- Legend**
- Site boundary
 - Building extension
 - Weighbridge
 - Shredder
 - Cement silo
 - Dewatering plant
 - Reagent storage
 - Mobile high sheer mixer
- Water treatment infrastructure**
- Bunding
 - Wastewater treatment plant (Stage 2)
 - Fire system – water tanks
 - Bay (Stage 1)
 - Bay (Stage 2)
 - Pit (Stage 1)
 - Sliding security gate
 - Driveway
 - Carpark



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Figure 1.6: Proposed site layout (indicative subject to detailed design)

1.3.2 Construction workforce and hours

Each stage of construction of the Proposal would employ up to 10 Full Time Equivalent (FTE) workers.

The duration of construction works is anticipated to be four months. Construction hours would be as follows:

- Monday to Friday: 7am to 6pm
- Saturdays: 8am to 1pm
- Sundays and Public Holidays: no work permitted.

1.3.3 Plant and equipment

Equipment necessary for construction of the Proposal would include:

- Compaction equipment
- Backhoes
- Excavators
- Rollers
- Trucks
- Concrete pumping equipment
- Air compressors
- Concrete vibrators and saws
- Mobile cranes and
- Welders.

1.3.4 Construction ancillary facilities

No proposed ancillary facilities would be required for construction of the Proposal. The construction workforce would be able to utilise existing facilities in the office building.

1.3.5 Construction environmental management

Standard best practice construction environmental controls would be implemented during construction to manage and mitigate air quality, water quality, sediment and erosion, noise and vibration and soil and contamination impacts at the Site.

The environmental controls to be implemented would be detailed in a Construction Environmental Management Plan (CEMP). The CEMP would integrate the project conditions of consent following approval and would include sub-plans to address management of traffic, noise and vibration, air quality, water quality, and soil and water impacts.

The CEMP and sub-plans would be prepared by a suitably qualified and experienced person and would be implemented at the Site for the duration of construction works.

No waste material would be received at Site during construction, and as a result the risk of contamination of soils in and around the Site during construction is considered low.

1.3.6 Construction traffic movements

Given the staging of construction over two years, the generation of construction traffic at any one time is expected to be minor. Construction workforce passenger vehicles would be suitably accommodated within the existing on site parking area. Heavy vehicles for deliveries of material would temporarily utilise the Site for loading and unloading, and heavy rigid vehicles or articulated vehicles would not park at the Site.

It is anticipated that trucks accessing the Site for construction works would utilise similar haulage routes than during Site operation, being via the M7 Motorway. Minimal impact to residential areas is expected as a result of construction works at the Site.

Stage 1 operations would continue at a reduced scale while Stage 2 construction occurs. Stage 2 construction workforce parking requirements would be managed through construction phasing to reduce the need for offsite parking.

Construction related vehicle movements would be managed under the Transport sub-plan of the CEMP, minimising the risk of impact to amenity to local businesses and road users.

1.4 Operations

1.4.1 Staging of operations

Two stages are proposed for the operation of the Site, emulating the stage timeframes for the construction of the Site. These stages consist of:

- Stage 1 would operate for approximately two years following completion of Stage 1 construction
- Stage 2 operation would commence following completion of Stage 2 construction.

However, pending market conditions and operational efficiency at the Site, Stage 2 may commence earlier or later.

Stage 1 operations would comprise of the following:

- Storage, classification and transfer of contaminated soil, including ASS/PASS
- Storage, classification and transfer of packaged waste in Intermediate Bulk Containers (IBCs)
- Product destruction of packaged waste
- Treatment of contaminated soil by bioremediation (as described in Section 1.4.6.2)
- Treatment of ASS (as described in Section 1.4.6.2)
- Treatment of contaminated soil in accordance with both general and specific immobilisation approvals. Soil immobilisation may be undertaken using the mobile high sheer mixer, at various locations within the building, from time to time during Stage 1.

A detailed description of the activities to be carried out in Stage 1 are included in Section 1.4.2 and Section 1.4.6.

Stage 2 operations would include:

- All of the activities carried out during Stage 1
- Storage, classification, transfer and treatment of contaminated liquids and sludges.
- Operation of the WWTP.

A detailed description of the additional activities to be carried out in Stage 2 are described in Section 1.4.6.

1.4.2 Waste types and volumes

Wastes proposed to be accepted at the Site would be categorised by either its nature or by the treatment method that would be applied. Within these waste types there may be a high degree of variability in the specific waste received.

Approved waste types to be received at the Site are detailed in Appendix B of the submissions report and are summarised in Table 1-2.

Table 1.2: Waste types proposed for the Site

Type of Waste	Management	Tonnes per Annum
Packaged waste – Liquid	Contaminated packaged waste: no treatment, only storage	60,000 t:
Packaged waste - Solid	Non-contaminated waste: shredding and offtake for disposal	<i>Approx 48,000 t liquid waste, 12,000 t solid waste</i>
Bulk soils	Various methods:	110,000 t
<i>Contaminated soils</i>	<i>Primarily chemical oxidation</i>	<i>10,000 t</i>
<i>Contaminated soils</i>	<i>Primarily immobilisation</i>	<i>60,000 t</i>
<i>Contaminated soils</i>	<i>Primarily bioremediation</i>	<i>10,000 t</i>
<i>Acid sulfate soil</i>	<i>Acid neutralisation in batches</i>	<i>30,000 t</i>
Sludges (Stage 2 only)	Dependent on moisture content of sludges – dewatering, wastewater treatment and soil decontamination	20,000 t
Non-contaminated drilling mud waste (Stage 2 only)	Dewatering and size sorting	10,000 t
Liquid waste (Stage 2 only)	Treated and validated in 50 kL batches through the wastewater treatment plants	70 ML
Total		270,000

Asbestos containing materials would not be accepted at the Site. Any materials received that meet this classification would be subject to an unexpected finds procedure (refer to Appendix D of the OEMP) and removed from site for appropriate disposal.

1.4.3 Key operation steps

Key operation steps would be followed for all materials received at the Site, both prior to receipt and following treatment. The key steps are summarised in Figure 1-7 below.

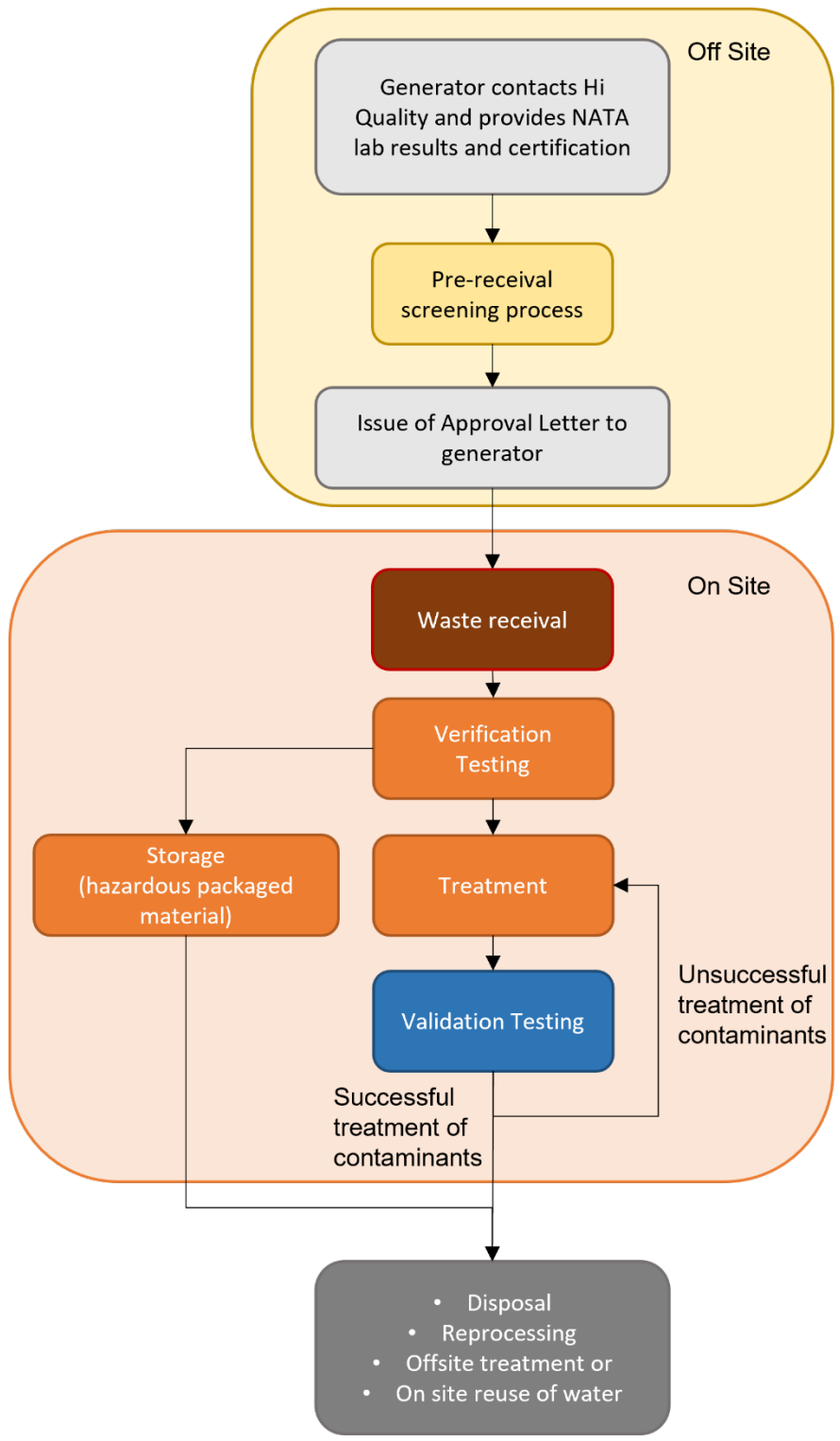


Figure 1.7: Key steps of operation

1.4.4 Waste receipt

Preliminary Waste Screening Procedure

A preliminary waste screening assessment would be required to be undertaken, prior to Hi-Quality issuing an 'Acceptance Letter' and waste being received at the Site.

The waste generator would be required to sample the waste stream and provide analytical results from a NATA-accredited laboratory to Hi-Quality. Hi-Quality would provide the generator with the required testing and characterisation requirements prior to pre-approval of any waste load through the issue of an 'Acceptance Letter'. The analytical results from the preliminary waste screening assessment must demonstrate that the waste is compliant with the criteria for the wastes approved for treatment or storage at the Site. This would require demonstration of compliance with the physical and chemical test criteria or assessment against previous results for a similar waste batch.

Where similar wastes have previously been received and successfully treated, the results of previous analysis results may be accepted, or a reduced frequency of sub batch analysis undertaken, to demonstrate compliance with the waste batch control procedure and validation / reporting requirements.

Waste contractors would also be required to undertake a physical inspection of the material and waste stream at the point of waste generation. This would finalise the requirements for physical handling and / or management of odour issues on the Site.

Hi-Quality would retain on file the NATA-registered laboratory analytical results for each consignment and would issue an 'Acceptance Letter' upon satisfaction of waste characterisation in line with accepted waste types at the Site (as defined in Appendix C of this submissions report). The Acceptance Letter would include characterisation of the waste in accordance with the NSW EPA Waste Classification Guidelines.

Batch Control Procedure

The Batch Control Procedure would commence concurrently with the Preliminary Waste Screening Procedure and would be the mechanism for tracking the waste through the WTF. The procedure would include the establishment of the following for each batch of waste:

- Batch number (Unique Identifying Number, or UIN) – a six-digit code
- Waste tracking number
- Quantity of waste in the batch
- Prescription of packing and /or delivery requirements.

The testing certificates from the Preliminary Waste Screening would be assigned to the UIN (to include chain of custody records). The Batch Control Procedure would also identify the selected treatment train for the batch of waste to be received.

Acceptance at Site

Only wastes that have undergone the Preliminary Waste Screening and received an 'Acceptance Letter' and a UIN for the batch of waste from Hi-Quality would be accepted at the Site. Consignments that arrive without a valid 'Acceptance Letter' and UIN would be rejected at the weighbridge and not permitted to offload.

Waste material generators would be required to contact the Site to arrange consignment and delivery details. Once accepted on site waste would undergo verification sampling to confirm material properties and compliance with the waste acceptance criteria.

The WTF would implement an on site volume limit for each waste type and would not accept waste at the Site if it cannot be adequately stored and segregated from other waste types. On site volume limits are presented in Table 1-4.

This process is summarised in Figure 1-8 and detailed in Table 1-3.

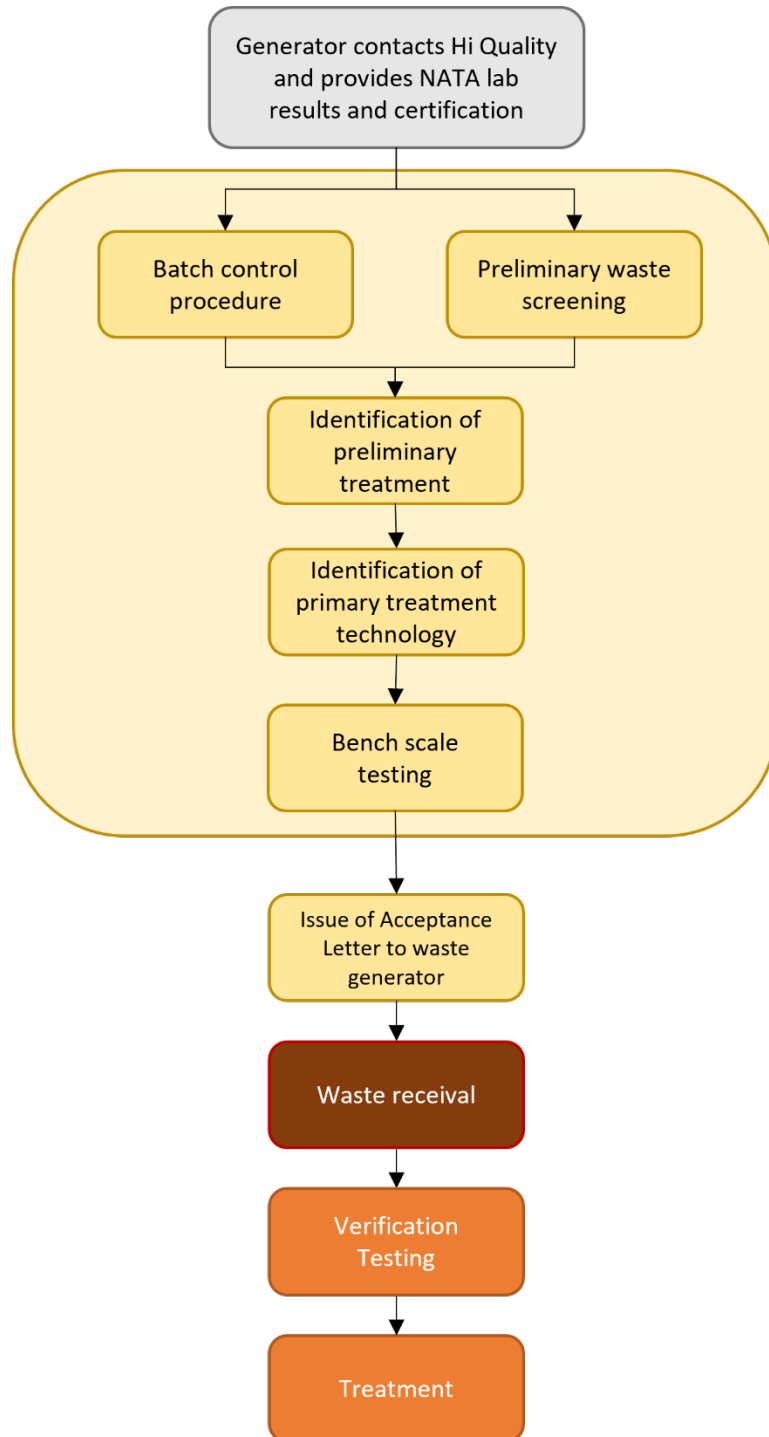


Figure 1.8: Waste receipt process

Table 1.3: Waste receival process

Process	Screening
Batch control procedure	<p>Establishment of waste tracking procedure through the WTF, including:</p> <ul style="list-style-type: none"> • Batch number (Unique Identifying Number, or UIN) – a six-digit code • Waste tracking number • Quantity of waste in the batch • Total number of sub-batches (based on volume/tonnage estimates) – individual sub batch numbers will be assigned and any analytical data referenced accordingly • Packing/delivery requirements • Assignment of National Association of Testing Authorities (NATA) accredited laboratory certificates from the preliminary waste screening (supplied by others) to the UIN (to include chain of custody records). Alternatively, if this is a regular waste type, a comparison with previous analytical waste analysis results will be undertaken and confirmation of similar analysis results will be made; and • Selected treatment train – multistage treatment process for each batch, e.g. acceptance, pre-screening, treatment, validation, and disposal.
Preliminary waste screening	<p>The Preliminary waste screening must include the following information:</p> <ul style="list-style-type: none"> • Source of waste <ul style="list-style-type: none"> – Waste type – Contaminants of Potential Concern (COPCs) summarised – Volumes – Physical & chemical criteria – Odour • Data interpretation <ul style="list-style-type: none"> – Review of analytical test data & frequencies – Preliminary appraisal against test history (if similar batches tested previously) • Summarise physical and chemical conditions • Identify primary contaminant of concern • Recommend scope of bench scale testing to be conducted at the laboratory onsite • Do the solid wastes contain perfluoroalkyl and polyfluoroalkyl substances (PFAS)? (Y/N) • Acid Sulfate Soils (Y/N) <ul style="list-style-type: none"> – Does the ASS contain anthropogenic materials?
Identify Preliminary Treatment	<ul style="list-style-type: none"> • Where the primary treatment technology would benefit from a preliminary treatment with the aim of: <ul style="list-style-type: none"> – Reduce contaminant mass by physical separation. – Enhance the performance of destructive technologies by providing improvements via chemical separation. – Improve mixability for immobilisation.
Identify Primary Treatment Technology	<ul style="list-style-type: none"> • Identify the principal contaminants of concern • Assign a category (A, B, C, D) (refer Table 1-5)

	<ul style="list-style-type: none"> - A: Organics - B: Halogenated Hydrocarbons - C: Metals and metalloids - D: Other specific waste streams • Shortlist the preferred treatment technology • Summarises the optimum treatment technology and process requirements (e.g. review of previous results) • Preliminary dosage rates for solids / sludges (chemical oxidation and immobilisation) • Mixing requirements and the need to add chemical separation agents (bioremediation) • Preliminary dosage rate for liquids (chemical oxidation / precipitation) • Shortlist suitable treatment reagents • Summarise the target treatment criteria and validation parameters
Bench Scale Testing (conducted onsite)	<ul style="list-style-type: none"> • Select the test methods and standards to be adopted in demonstrating the treatability of the material in meeting the criteria • Summarise input parameters • Finalise Reagent selection & dosage
Waste Receiving	<ul style="list-style-type: none"> • Issue batch number and sub batch number • Undertake verification testing to confirm material properties.

1.4.5 Waste storage

Each waste type would be stored according to guidelines issued by Fire Rescue NSW, the Australian Dangerous Goods Code, and best industry practice. Figure 1.9 shows the available internal storage and the location of bays.

Table 1-4 summarises the storage location and limits of each waste type that is received, stored, or generated (as a by-product) at the Site, as well as the approximate residence time for each waste type based on the available storage on site and the proposed annual throughput of each waste type. Most bays/pits have been assumed to store 100 m³ being approximately five metres by five metres and with stockpile heights limited to four metres, with the exception of Bay D which would be one bay of approximately 10 metres by five metres and Bay E which would contain three bays of approximately 7.5 metres by five metres. Dimensions are indicative and would be subject to further design development. There are 32 bays/pits proposed on site.

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Figure 1.9 Indicative available storage and location of bays (subject to detailed design)

Table 1.4: Waste material storage limits and locations

Waste type	Storage limit (at any one time)	Storage before treatment	Storage after treatment	Bay/ Pit No.	Allocated available bays	Approximate residence time
Packaged wastes – Hazardous	400 m ³	N/A – no treatment	In IBCs or drums located adjacent to the office and amenities block, within the shed or within compartment 3.		n/a*	~2-4 days
Packaged wastes – Non-hazardous		In IBCs or drums located adjacent to the office and amenities block, within the shed.	Skip bin up to 10 m ³ in capacity, removed for disposal as required.		n/a	
Bulk soils: 1,500 m ³ <i>Inclusive of dried drill muds</i>	Acid sulfate soils: 200 m ³	Treated into specific, pre-allocated material bays, as identified in Figure 1.6.	Post treatment, each batch is unloaded into specific, pre-allocated bay. (refer to Figure 1-6)	C	2	~1-3 weeks (Contaminated soils) ~4 days (ASS) ~3 weeks (Bioremediation)
	Bioremediation: 375 m ³			E	3	
	Chemical oxidation: 350 m ³			B	5	
	Immobilisation: 575 m ³			C	6	
Recovered recyclable materials (byproduct of)	100 m ³	N/A	Recovered recyclable materials would only be stored up to a	F	1	~1-2 days

physical soil screening)			maximum of 35t before removal. Recovered material bays (refer to Figure 1-6)			
Drill muds	250 m ³	Unloaded directly into drill mud plant	Sediments to be stored in specific soil bays Liquid to be stored in holding tanks in bunded WWTP area	A	3	~2 weeks
Liquid waste	200 m ³	Within holding tanks in bunded WWTP area	Within holding tanks in bunded WWTP area	n/a	n/a	~2 days
Waste oils	1 m ³	N/A	1,000 L IBC located in bunded WWTP area	n/a	n/a	

n/a – these waste types will not be stored in bays, therefore no bays have been allocated. Refer to Figure 1-6 for the storage locations for the various waste types

1.4.6 Waste treatment

Several different treatment methodologies would be applied to waste received at the Site depending on contaminants identified and the type of waste.

As described in Section 1.4.4, prior to materials being received at the Site, Preliminary Screening Analysis will be undertaken to categorise wastes, determine the best treatment or combination of treatments and calculate reagent dosages during the treatment process. Table 1-5 provides the waste categorisation and primary and secondary treatment options for each contaminant group.

Table 1.5: Waste categorisation and treatments

Waste Categorisation	Contaminant Group	Primary Treatment Technology	Secondary Treatment Technology
A	Organics	Bioremediation	Chemical Oxidation / Immobilisation
B	Halogenated Hydrocarbons	Chemical Oxidation	Bioremediation / Immobilisation

C	Metals and Metalloids	Immobilisation	Chemical Reduction
D	Other Specific Waste Streams	Immobilisation	Chemical Oxidisation / Bioremediation

Typically, each material type will undergo a standard treatment methodology as described in the sections below. Table 1-6 provides an overview of treatment options for each waste type.

Table 1.6: Waste treatment overview

Waste Type	Description	Treatment Methodology	Stage
Packaged Waste (solid, liquid, sludge)	Non-contaminated solid packaged waste for destruction	<ul style="list-style-type: none"> • Destruction (via shredding) 	1 & 2
	Non-contaminated liquid packaged waste for storage	<ul style="list-style-type: none"> • Storage only 	1 & 2
	Packaged industrial chemical waste	<ul style="list-style-type: none"> • Characterisation of unknown wastes only • Storage 	1 & 2
Sediments and Sludges	PFAS Contaminated Soil	<ul style="list-style-type: none"> • Storage 	1 & 2
	Total Petroleum Hydrocarbons (TPH)	<ul style="list-style-type: none"> • Physical separation/screening • Chemical separation • Bioremediation • Storage 	1
	Soils containing Total Recoverable Hydrocarbons (TRH) and Benzene, Toluene, Ethylbenzene, Xylenes and Napthalene (BTEXN)	<ul style="list-style-type: none"> • Bioremediation • Storage 	1 & 2
	Coal Tar Contaminated Soil from Former Gasworks Sites	<ul style="list-style-type: none"> • Immobilisation • Storage 	1 & 2
	Specific Immobilisation Approvals: <ul style="list-style-type: none"> • Lead • Chrome • Copper • Arsenic • Nickel 	<ul style="list-style-type: none"> • Immobilisation • Storage 	1 & 2
	Sludges	<ul style="list-style-type: none"> • Dewatering • Wastewater treatment • Contaminated soil treatment 	2
	Acid Sulfate Soils	<ul style="list-style-type: none"> • Contaminated soil treatment (if required) 	1 & 2

		<ul style="list-style-type: none"> • Acid neutralisation 	
Non-Contaminated Drill Muds	Non-contaminated soil and water slurry from hydroexcavation works	<ul style="list-style-type: none"> • Dewatering and separation into liquid waste (wastewater treatment) and soils • Further treatment of water in wastewater treatment plant • Testing against Treated Drilling Mud RRO/RRE (2014) 	2
Liquid Wastes	Contaminated liquid, water outputs of slurry and drill mud dewatering	<ul style="list-style-type: none"> • Wastewater treatment 	2

Further detail on the types of waste and treatment approaches is provided in Annexure A to this Project Description.

1.4.6.1 Packaged waste

Packaged waste would be received and managed in both Stage 1 and Stage 2 of Site operations.

Packaged wastes would fall within two broad categories:

Packaged hazardous chemical waste

Packaged hazardous chemical waste would be received at the Site in IBCs or drums and would not be opened unless characterisation or classification of the material is required. Testing of unknown IBCs would be undertaken to characterise the materials prior to transport offsite to an appropriate treatment facility. These wastes would be stored in accordance with Australian Standards (AS) and the Australian Dangerous Goods Code (ADGC). These wastes would be stored at the Site until a suitable treatment or destruction facility is able to accept the materials within NSW or interstate.

Packaged waste for product destruction

This would include consumer products that do not pass quality control. Packaged waste would be delivered to the Site on flatbed trucks. Packaged waste received at the Site for destruction would be non-contaminated, inert, and pre-classified as general solid waste (GSW). Packaged waste for product destruction and empty packaging would undergo destruction via shredding for offsite disposal at an appropriately licensed facility.

1.4.6.2 Soils, sediments and sludges

Soils, sediments and sludges of varying moisture content and contaminant classification would be received at the Site and would be subject to various processes to treat and decontaminate the material as far as practicable, prior to disposal at an appropriately licensed.

The process flow for soils, sediments and sludges are detailed in Figure 1-9.

Bulk soils

Stage 1 operations would include treatment of soils through screening, bioremediation and immobilisation methodologies, and Stage 2 operations would extend to chemical oxidation and chemical screening treatment.

Once an 'Acceptance Letter' and UIN for a consignment is issued by Hi-Quality, incoming bulk soils would be delivered by tipper truck or truck and dog and unloaded into specific material bays. Verification testing would be undertaken following receipt to ensure contaminants align with the characterisation provided by the waste generator.

Each load would be assigned a separate bay, with no mixing of loads permitted. Dedicated bays would be allocated for storage, conditioning and final validation of materials. The following processes would be undertaken to treat soils:

1. **Physical screening:** Bulk soils would undergo physical separation to separate oversize and non-soil materials, such as plastics, metals, timber, concrete and aggregate, and cardboard and paper. This would be achieved through use of the mixing plant, a mobile screen, or an excavator with a screening bucket attachment. The mixing plant would also be utilised to break up clods in soils and clay, to improve the performance of further processing technologies.
2. **Chemical separation:** chemical separation would be utilised in select instances where it would provide a beneficial addition to the treatment process.

Once physical screening and /or chemical separation is complete, the soils would be treated through one or more of the following treatment trains:

- **Bioremediation** would be used to treat soils contaminated by organic compounds (such as Total Petroleum Hydrocarbons (TPH) and would involve aerobic techniques such as biopiles. Bioremediation would occur until the completion of treatment has been validated through laboratory testing to confirm suitable thresholds of contaminant load has been achieved. The timeframe for treatment would be dependant on the nature of the contamination, concentration of the contaminants and the type and volume of soil. The Site would manage wastes to be treated via bioremediation through onsite volume limits. Hi-Quality would not accept additional wastes for treatment via bioremediation until any existing materials have been treated, validated, and removed from Site for disposal.
- **Chemical oxidation** involves the addition of a strong oxidant (such as peroxide, potassium permanganate or sodium persulphate) to produce hydroxyl radicals that treat hydrocarbons in contaminated soils. Chemical oxidation would be used to treat soils contaminated by persistent organic pollutants (POPs) such as chlorinated hydrocarbons (e.g.: solvent impacted soils), polycyclic aromatic hydrocarbons (PAHs) and pesticides. This process would involve the use of a high sheer mixer or paddle mixer, to ensure sufficient contact time between the oxidants and contaminants of the soil.
- **Immobilisation** would be used to treat soils where there is no alternative treatment available, such as soils contaminated by coal tar from former gasworks sites and heavy metals. Immobilisation would involve mixing soil with cement, lime, or other reagents, and would be undertaken in accordance with the NSW EPA General or Specific Immobilisation Approvals.

The bulk soils processing methodology as described above would also be used to decontaminate ASS and the dewatered soils output from sludges.

Validation testing would occur following the processes described above to determine the next treatment process for the soils (if required), or to assess if the contaminant levels fall within the thresholds for landfill acceptance.

Recovered material from physical separation (plastics, concrete and aggregate, timber, paper and cardboard, and metals) would be transferred to a third party for reprocessing or disposal.

The majority of soil outputs from these processes would be transferred to a licenced landfill for disposal.

Acid Sulfate Soils

ASS would be received and treated at the Site in both Stage 1 and Stage 2 of operations.

ASS would be stored separate to other bulk soils, as identified in Figure 1-5. As with bulk soils, each load would be assigned a separate bay. ASS would be transferred to the Site by truck and dogs.

Verification of ASS would be undertaken to classify any contaminants and the presence of ASS.

Contaminated ASS would be treated using the bulk soils methodology above to reduce contaminant load.

The treatment of ASS would be through neutralisation by applying aglime using a mobile high sheer mixer. Aglime would be automatically dosed, based on characterisation and verification test results.

Neutralised ASS would be transferred to a suitably licenced landfill for disposal.

Sludges

Sludges would only be received and treated at the Site in Stage 2 of operations.

Sludges would be delivered to the Site by tankers ranging in capacity from 2,000 L to 20,000 L. Tankers would unload sludge directly into designated containment bays or pits. Each batch of sludge would be unloaded in a pre-allocated pit, with no mixing of loads permitted.

Verification testing would be undertaken following receipt to ensure contaminants align with the characterisation provided by the waste generator.

Sludges would be treated based on moisture content:

- Drier sludges would undergo further dewatering via a plate filter press.
- Sludges with intermediate moisture content would undergo thickening using bentonite.
- Wet sludges would undergo filtration or flocculation to separate suspended solids. This may be done through the Dissolved Air Floatation (DAF) tank in the Wastewater Treatment Plant (WWTP).

The products of these processes would be:

- Wastewater – this would undergo further treatment in the WWTP (refer to Section 1.4.6.4), and
- Dewatered soils – these would be transferred to the soil treatment bays to undergo decontamination (as described in the Bulk Soils section, above).

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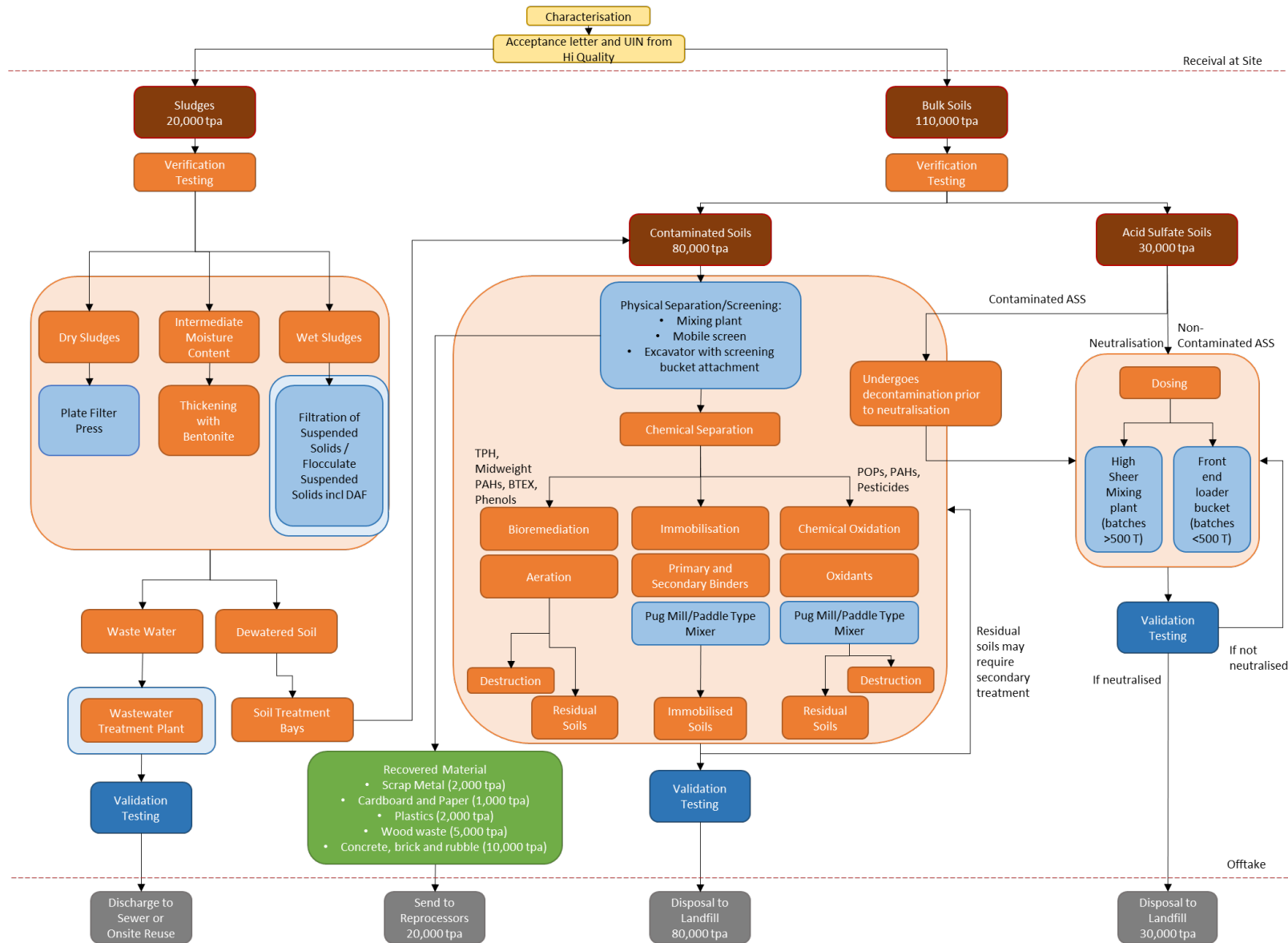


Figure 1.10: Soils, sediments and sludges process flow

1.4.6.3 Drill mud

Drill muds would only be received and treated at the Site in Stage 2 of operations.

Drill muds are generated as a by-product of hydro excavation activities, such as non-destructive digging for the purposes of asset location. Only non-contaminated drill muds would be accepted at the Site. Drill muds to be brought to the Site would be subject to the Preliminary Waste Screening and Batch Control Procedures outlined in Section 1.4.4.

Drill muds would be delivered to the Site in vacuum tanker trucks of various capacities and unloaded directly to the Drill Mud Plant for treatment, as identified in Figure 1-6.

Drill muds would be treated at the Site using a shaker sieve, desilter hydrocyclone and decanter centrifuge. By-products of this process are separated solids (rock and aggregate, coarse sands, and finer silt pressed into a filter cake) and wastewater.

The separated solids output would undergo testing to determine compliance with the NSW EPA Resource Recovery Order (RRO) and Resource Recovery Exemption (RRE) for Treated Drilling Muds (2014). Compliant material would be transferred offsite for use in civil applications such as fill material. Material that doesn't meet the RRO/RRE specification would be transferred to a licenced landfill for disposal.

Wastewater from the process would be treated using the WWTP system and would be tested to ensure compliance with Sydney Water trade wastewater specifications. Wastewater would either be reused on site for dust suppression or would be discharged to sewer.

The process is illustrated in a process flow diagram in Figure 1-10.

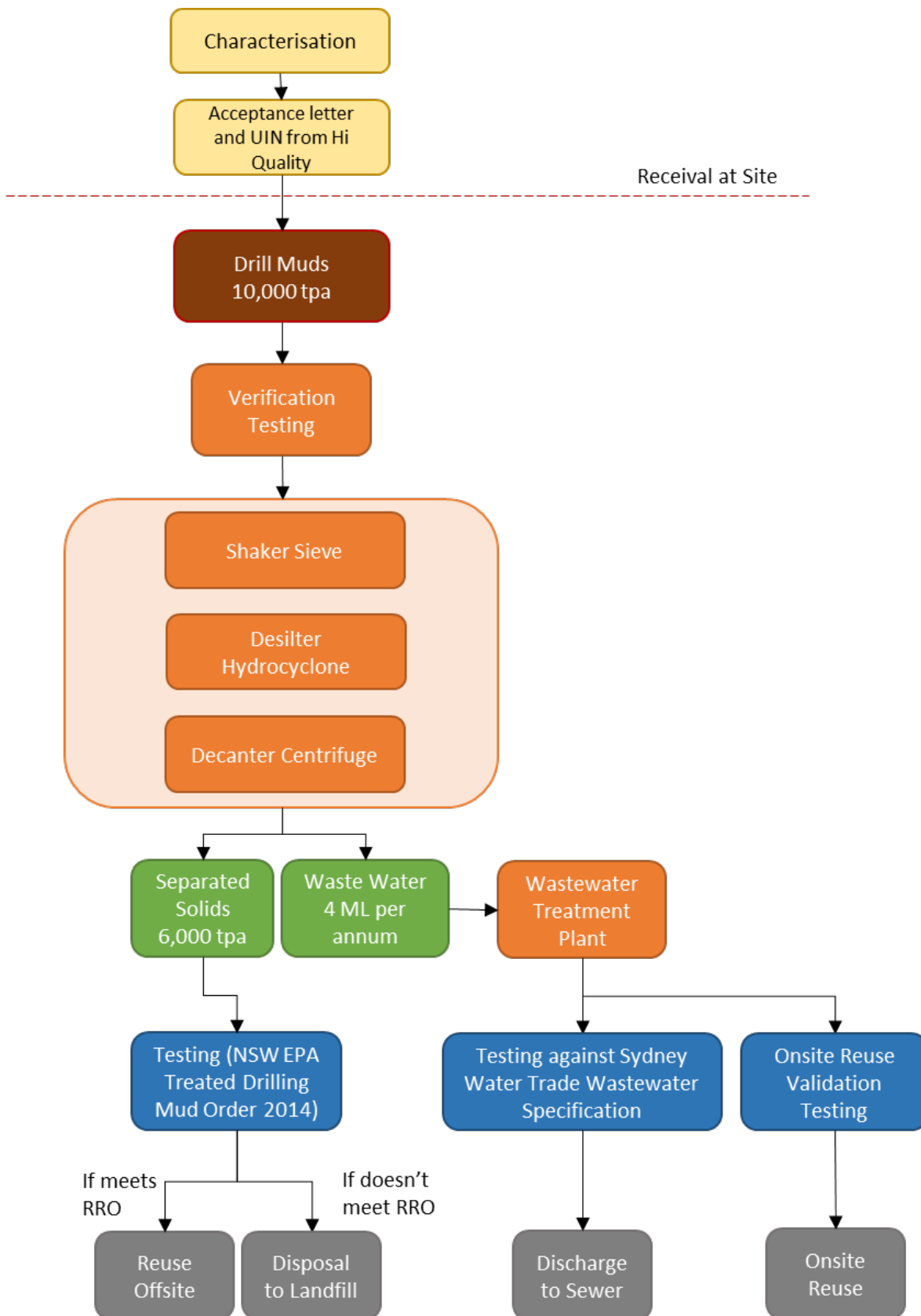


Figure 1.11: Drill mud process flow

1.4.6.4 Liquid waste

Liquid waste would only be received and treated at the Site in Stage 2 of operations.

Liquid waste would be received at the Site from industrial uses or internal Site uses (i.e. as a by-product of other material processing methods, truck wheel wash and dewatering) and would largely involve liquids contaminated by organics, acidity and alkalinity (pH), heavy metals, nutrients, PFAS, and suspended solids. Liquid wastes to be brought to the Site would be subject to the Preliminary Waste Screening and Batch Control Procedures outlined in Section 1.4.4.

Liquid wastes would be delivered to the Site in tanker trucks and directly unloaded into the WWTP, as identified in Figure 1-6, further detail is show in Figure 1.12.

The WWTP would be used to treat contaminated liquids. The WTF is proposed as a custom designed and built wastewater plant for the treatment of wastewater, with a separate storage tank and wastewater treatment plant is used for PFAS contaminated water.

The Site would have its own laboratory and a designated Chemist to oversee the entire treatment process. The Site Chemist would conduct all pre-treatment testing in the laboratory before approving batches to be treated on a commercial scale. The Chemist would be responsible for the overall performance of the wastewater treatment process and the compliance with trade waste discharge. The Site would also employ a Chemical Engineer to oversee the process and compliance.

The treatment processes and technologies being used are well defined and understood industry standard water treatment methodologies.

The WWTP for treatment of liquid wastes that do not contain PFAS would comprise, in order of treatment process:

Step 1 - Holding tank

Wastewater is received into the holding / equalisation tanks from either:

- Bulk Tanker Deliveries (10 KL or 20 KL) - External
- Decanting water from settling pits, wheel wash, soil washing - Internal

The holding tanks would have a combined capacity of 540 KL and would consist of 4 x135 KL (or similar sized) tanks. The holding tanks also act as an equalisation tanks and provides a buffer for any potentially highly contaminated loads that are received, providing a somewhat stable / uniform contaminant feed for the downstream treatment.

Step 2 – Coalescing plate oil separator

The coalescing plate oil separator is specially designed to treat oily water and trap grease. The system would also have capability to treat other organics such as TPH and PAHs. The size of the coalescing plate filter would be approximately 6 KL, and this equipment would be used where oily water separation would be required, depending on the composition of the incoming wastewater.

Coalescing plate oil separators work by forcing oil droplets to impinge on surface area and create larger oil droplets, which rise to the surface of wastewater, where they can be removed via a gravity skimming process. A gravity (or coalescing) plate separator contains a series of plates through which the contaminated oily water flows. The objective of the design is to allow oil droplets in the water to coalesce on the underside of the plate eventually forming larger oil droplets which floats off the plates and accumulates at the top of the chamber. The larger droplets of oil become, the more buoyant they become. Eventually, the droplets reach a mass that is big enough to break free from the media packs. At this point, they rise to the surface of the wastewater, where they can be easily skimmed off and delivered to the waste oil chamber.

The oil accumulating at the top would then be removed / transferred with some entrained water to a waste oil tank. The waste oil tank would be a 1,000L IBC, which can be removed and replaced when full. Waste oil generated from this process would be sent to appropriately licenced oil recyclers for further treatment and refining. The coalescing plate filter would also have a bottom discharge point for the removal of large grit. Grit will then be tested and classified, depending on the waste classification grit will be treated on-site or removed for off-site disposal (refer to Step 8, below).

Oil particles that are 50-60 microns in size or smaller do not get separated (i.e. Emulsions). The variety of oily wastes in wastewater can limit removal efficiency especially when very dense and highly viscous oils such as bunker oil are present. Plates would be maintained by regular cleaning, ensuring optimum efficiency of removal.

Step 3 – Chemical dosing system for oil separator

The coalescing plate separator by itself would be adequate to treat the oily water and maintain regulatory compliance of treated water discharged to trade waste. However, if emulsions or oily waters with high amounts of dissolved oil are to be treated, then chemical dosing would be necessary to split or coagulate the emulsion prior to further separation.

The chemical dosing system would consist of both acids and coagulants, with both of these dosing systems becoming optional as required to treat the varying incoming wastewater. The chemical reagents would be pumped from 1000L IBC's using small chemical dosing pumps. The plant operator would determine when to use the coagulants and would typically be a result of bench scale testing to determine the need for a coagulant to be used.

Step 4 – Mixing tank (neutralisation tanks/precipitation tank)

Treatment reagents (refer to Step 5) are pumped into a 50 KL mixing tank where they are mechanically mixed with the wastewater using a mechanical mixer. The primary purpose of the mixing tank is to keep solids and precipitates in suspension and to ensure that treatment reagents have enough contact or reaction time with the contaminants in the wastewater to either:

- Neutralise Acidity or Alkalinity
- Precipitate Heavy Metals
- Adsorb Organics

The principle technology to remove heavy metal pollutants from wastewater is by chemical precipitation. Chemical precipitation includes two secondary removal mechanisms, coprecipitation and adsorption. Precipitation processes are characterised by the solubility of the metal to be removed. They are generally designed to precipitate trace metals to their solubility limits and obtain additional removal by coprecipitation and adsorption during the precipitation reaction.

There are many different treatment variables that affect these processes. They include the optimum pH, the type of chemical treatments used, and the number of treatment stages, as well as the temperature and volume of wastewater, and the chemical specifications of the pollutants to be removed. Each of these variables directly influences treatment objectives and costs. Treatability studies would be performed by an on-site Chemist to optimise the relevant variables, so that trade waste discharge goals are met.

The mixing tank would be 50 KL and will be operated as a batch process. The mixing tank is fed by supply pumps from the storage and equalisation tanks and the output of the mixing is pumped to the primary clarifier.

Step 5 –Chemical dosing system for mixing/neutralisation/precipitation tank

Various chemicals would be used to treat wastewater. Due to the variability of the incoming wastewater, a variety of chemical reagents would likely need to be used to provide effective treatment and maintain

compliance to trade waste discharge. All reagents proposed to be used are considered industry standard wastewater treatment reagents. All reagents used in the chemical dosing system would be pumped to the mixing tank.

The following is a summary of reagents to be used in the wastewater treatment plant, also detailed the purpose of each reagent:

- Hydrochloric Acid (37% w/w) - precipitation of heavy metals and neutralising alkalinity.
- Caustic soda (30% w/w) - precipitation of Heavy metals and Neutralising acidity.
- Aluminium Sulphate Solution (28% w/w, or powdered) - coagulating agent, precipitation of phosphate.
- Polymer (liquid or powdered) - coagulating agent.
- Activated Carbon (powdered) - adsorption of organics, PFAS, elimination of odour.
- Magnesium Oxide (powdered) - precipitation of heavy metals, neutralising acidity.
- Ferrous Sulphate (powdered) - reducing agent for metals

All reagents used in powdered form would be mixed with water in the dosing system prior to pumping to the mixing tank.

Step 6 – Clarifier

The clarifier is used to separate solids from liquids using gravity separation. After the mixing tank process, heavy metal precipitates and absorbed organics are suspended and require separation prior to discharge to trade waste. The primary clarify would be a 50 KL lamella coalescing plate type with a conical base vessel to allow solids to be collected. Solids would then be tested and classified, depending on the waste classification solids will be treated on-site or removed for off-site disposal (Refer to Step 8, below).

Step 7 – Sand & carbon (MMF) filtration

After the primary clarifier, a series of sand and carbon filters (also known as Multi Media Filters (MMF)) will be used to “polish” the treated water prior to disposal to trade waste. Sand filtration effectively removes any colloidal particles that have not been separated in the primary clarification stage. Carbon filtration effectively removes any colour and organics that have not been separated in the primary clarification.

Although sand and carbon filtration is not likely essential to meet trade waste discharge criteria, it is seen as an added layer of protection and additional treatment.

The sand and carbon filtration system would need backwashing periodically. The backwashed solids would be fed back into the storage and equalisation tanks.

Step 8 – Dewatering

The solids produced from the primary clarifier would be high in moisture content and require dewatering. This would be accomplished through a plate filter press. The filter press would take high moisture solids and dewater to less than 20% moisture and produce a filter cake.

The filter cake produced from the filter press would be variable in composition due to the variability of the wastewater to be treated. The filter cake would be classified as a regulated waste due to being a by product from a treatment process. Each batch of filter cake would be analysed to determine if it can be accepted at a regulated waste landfill. Typically, filter cake would meet landfill acceptance criteria as General Solid Waste or Restricted Waste allowing landfill disposal, however, if the filter cake is hazardous, the filter cake would be treated and immobilised/stabilised according to the contaminants present before off site landfill disposal.

Step 9 – Trade Waste Discharge

The trade waste discharge would have provisions for flow monitoring and sampling, both of which would be required by Sydney Water. It is planned to install an in-line flow monitoring, as this allows real time monitoring

and recording of flows as well as cumulative flow measurements. The trade waste discharge would also have a suitable sampling point for periodic sampling by the regulator.

The WWTP for treatment of liquid wastes containing PFAS would comprise, in order of treatment process is similar to that described above, with additional steps:

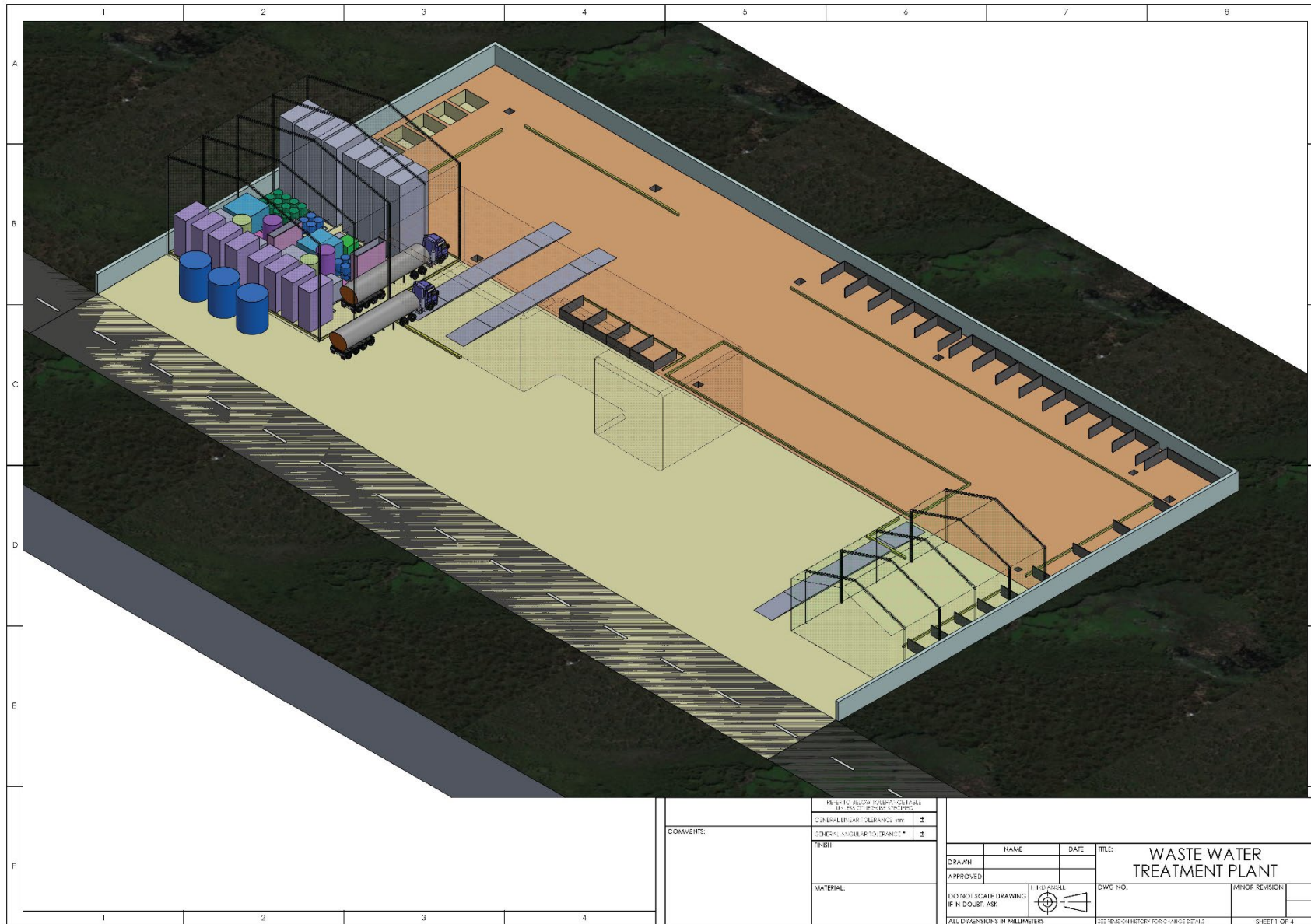
1. A holding tank
2. A chemical dosing and mixing tank
3. A clarifier to remove sludges and other solids. Primary chemical treatment with anionic and cationic coagulation, flocculation, chlorination, oxidation, pH adjustment, settlement, and clarification with addition of powdered activated carbon and zeolite
4. Secondary treatment through Volcanic Clinoptilolite Zeolite (VCZ) mechanical and ion exchange media filtration
5. Tertiary treatment through coal granular activated carbon (GAC) adsorption media filtration
6. Quaternary treatment through coconut catalytic microporous GAC adsorption media filtration
7. Quinary treatment through a weak base anion exchange resin media filtration
8. Senary treatment through ultra-high activity enhanced kinetic mesoporous GAC adsorption media filtration; and finally,
9. A holding tank for storage and testing prior to discharge.

Wastewater would be sampled at several points through the treatment train to confirm the effectiveness of treatment, and prior to disposal. Treated wastewater would be tested for compliance with Sydney Water's trade wastewater specification prior to discharge to sewer. Some treated wastewater may be reused on site for dust suppression.

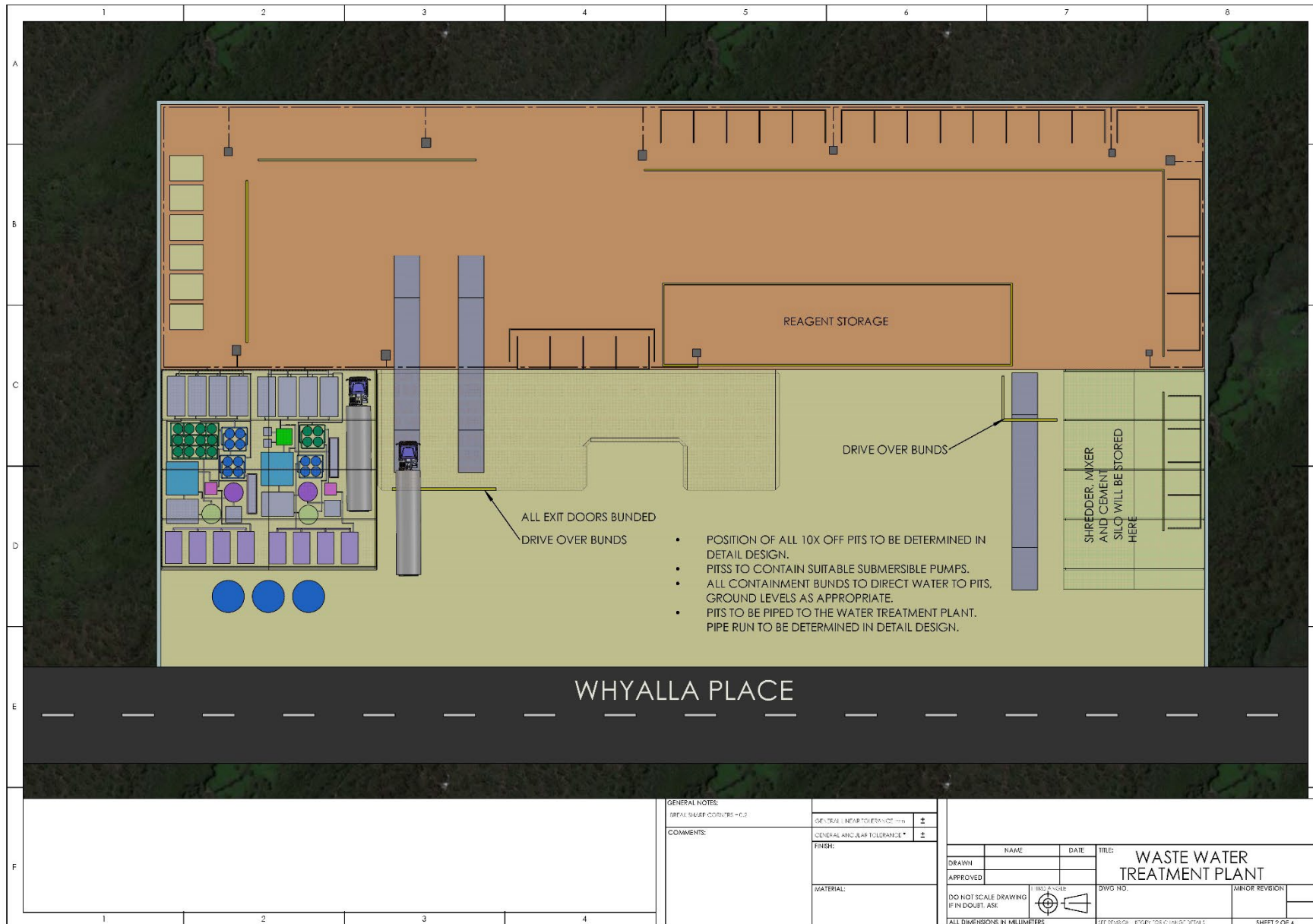
By-products of these processes include sludge which would undergo further dewatering via a screw press, with the dewatered material tested and either disposed to landfill or treated further using bulk soil methodologies described in Section 1.4.6.2. Waste oil may also be generated as a by-product and would be stored in 1 kL IBCs and would be taken to a suitably licenced oil recycling facility for further treatment.

The WWTPs would be bunded in accordance with relevant Australian Standards.

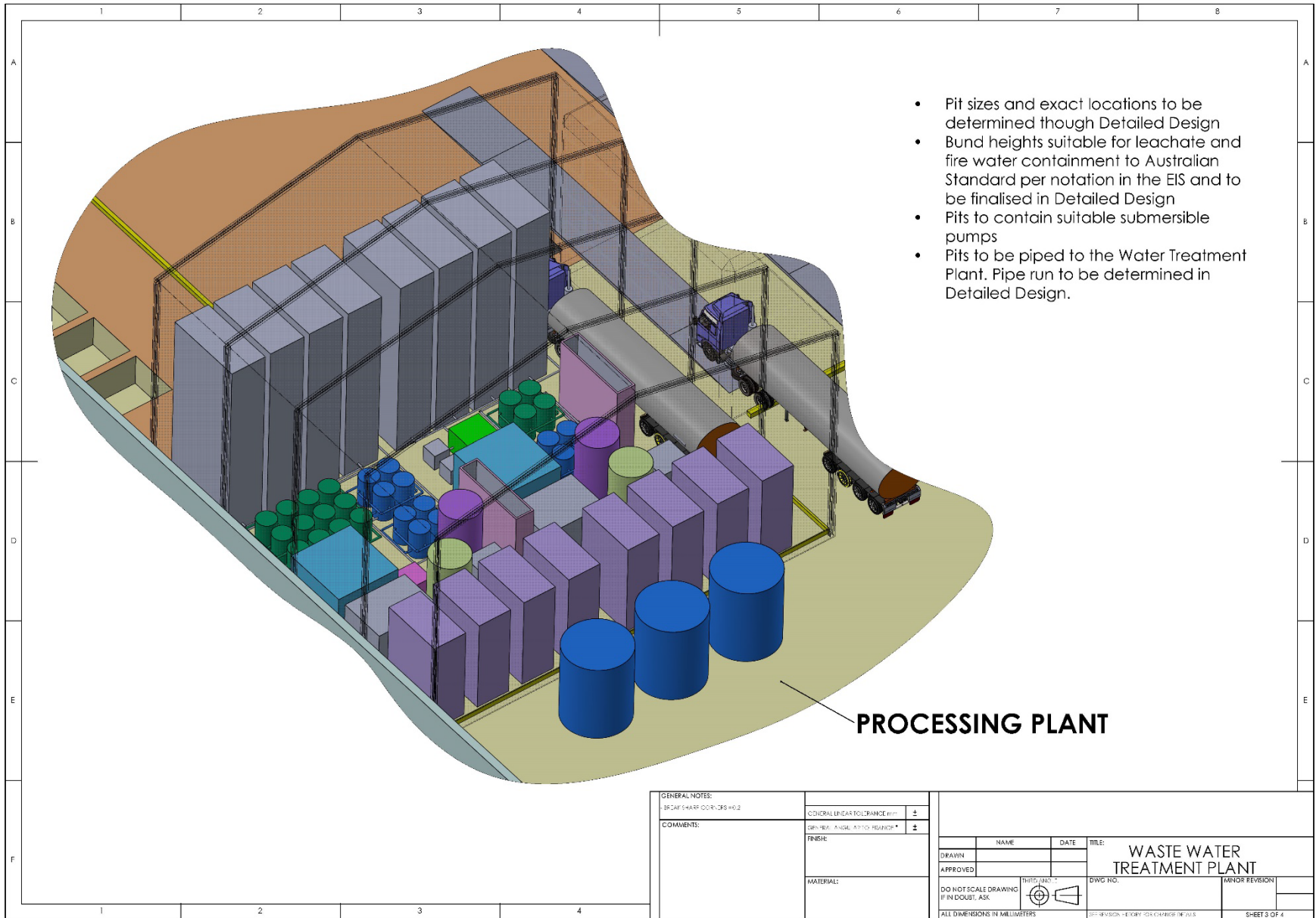
Prestons Waste Treatment Facility – Updated Project Description



Prestons Waste Treatment Facility – Updated Project Description



Prestons Waste Treatment Facility – Updated Project Description



- Pit sizes and exact locations to be determined through Detailed Design
- Bund heights suitable for leachate and fire water containment to Australian Standard per notation in the EIS and to be finalised in Detailed Design
- Pits to contain suitable submersible pumps
- Pits to be piped to the Water Treatment Plant. Pipe run to be determined in Detailed Design.

GENERAL NOTES: BS 5400 PART 4 CORNERS ± 0.2		GENERAL LINEAR TOLERANCE ± 1		TITLE: WASTE WATER TREATMENT PLANT	
COMMENTS:		DIM. TOL. ANGLES ± 10 DEGREES ± 1		DWG. NO.:	
MATERIAL:		FINISH:		MINOR REVISION:	
DO NOT SCALE DRAWING IF IN DOUBT, ASK		THIRD ANGLE		SHEET 3 OF 4	
ALL DIMENSIONS IN MILLIMETERS		DESIGNER:		CHECKED BY:	

Prestons Waste Treatment Facility – Updated Project Description

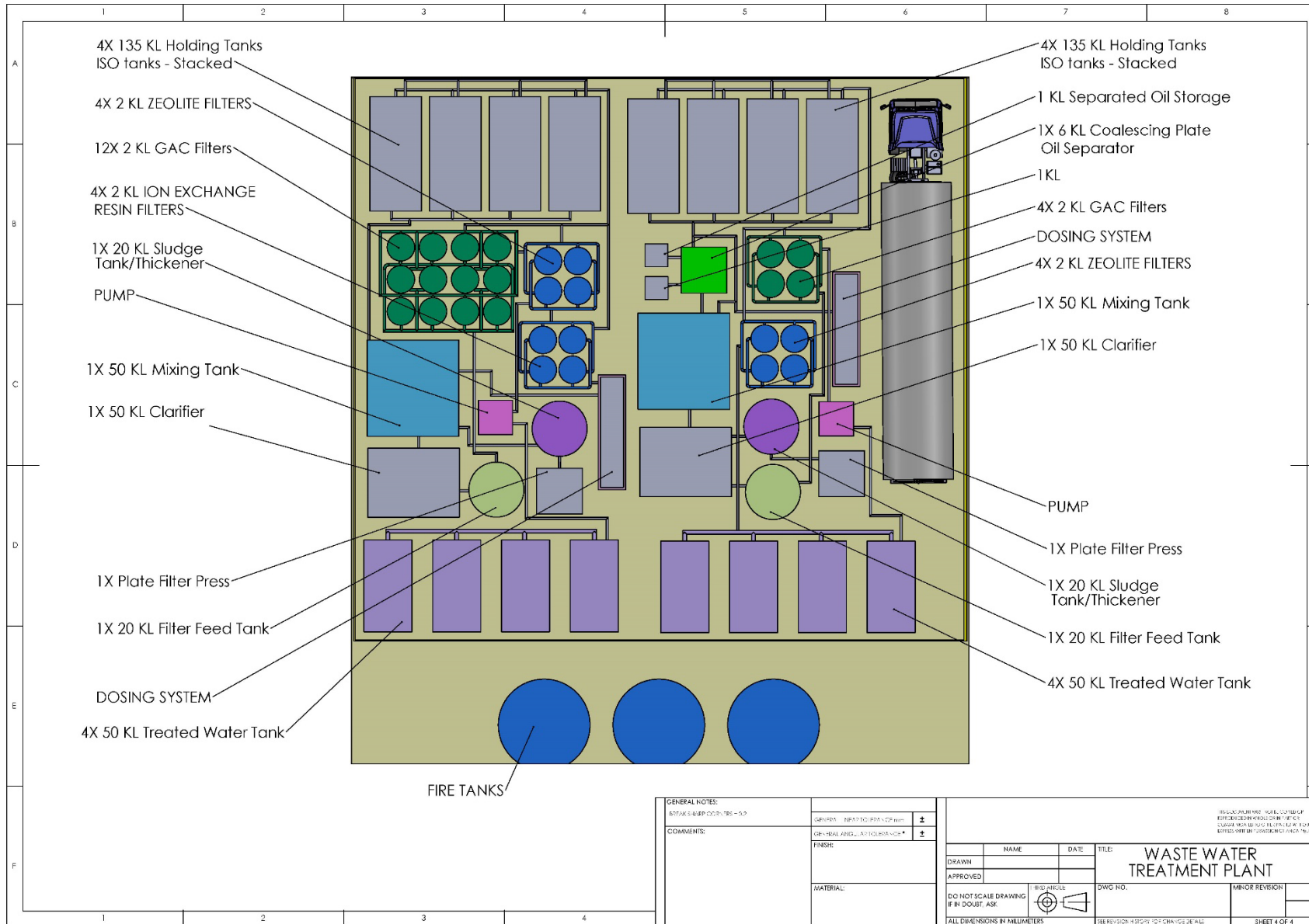


Figure 1.12 Wastewater treatment plant schematic (indicative subject to detailed design)

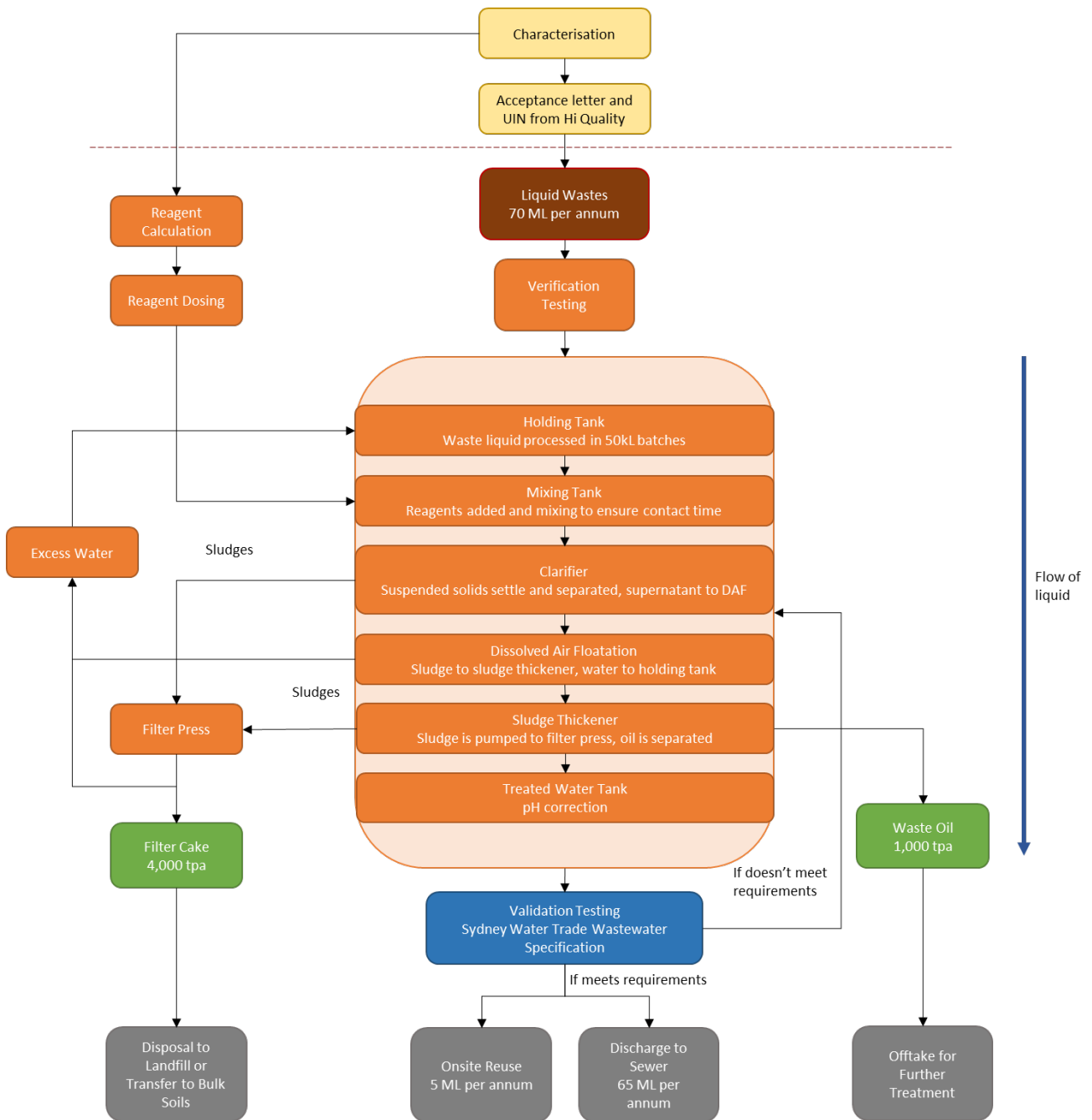


Figure 1.13: Non-PFAS liquid waste process flow

Prestons Waste Treatment Facility – Updated Project Description

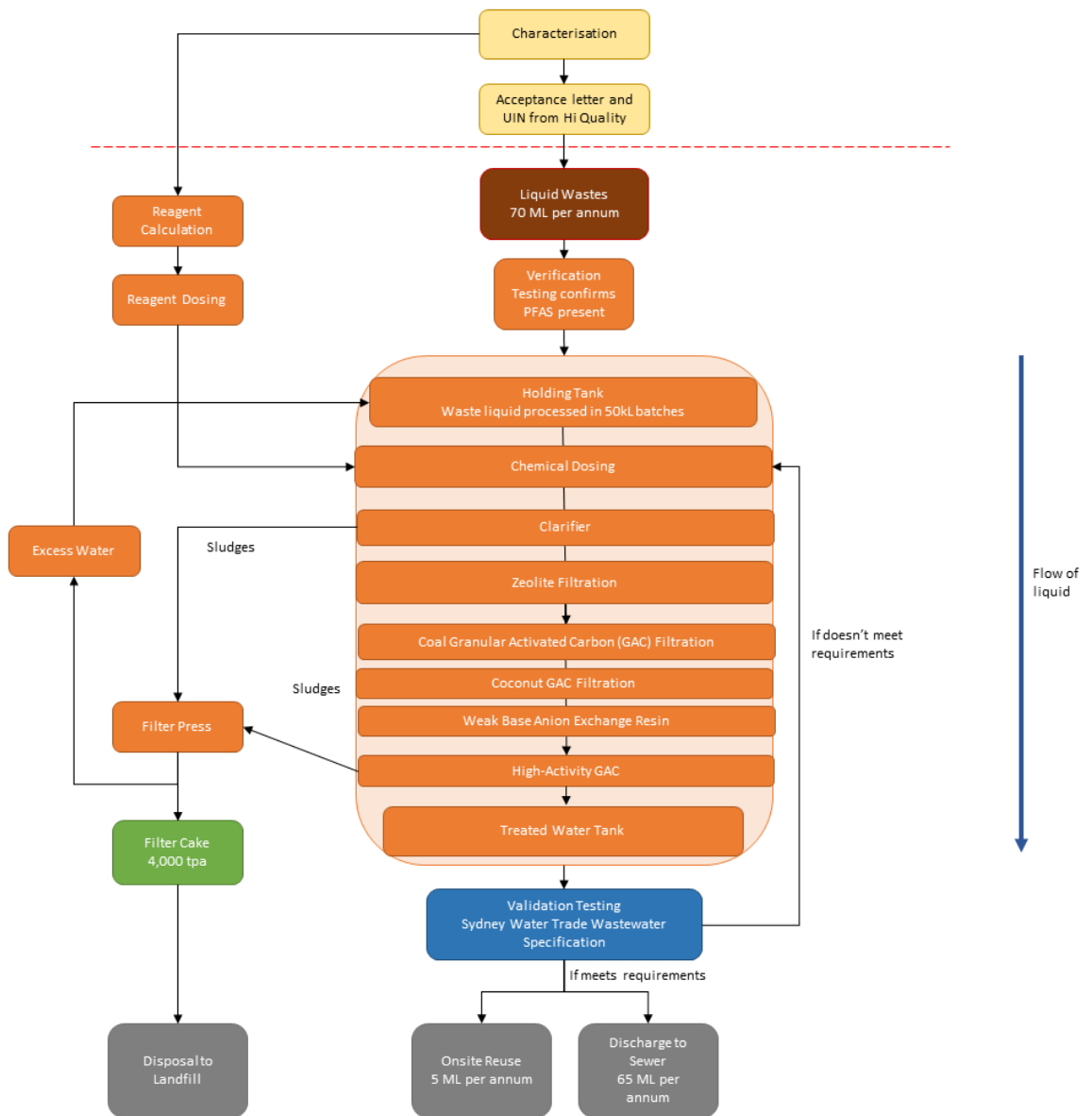


Figure 1.14 PFAS containing liquid waste process flow

1.4.6.5 Sampling, analysis and quality plans

A Sampling, Analysis and Quality Plan (SAQP) would be developed for each of the waste treatment processes and will address:

- Waste characterisation
- Waste acceptance
- Bench scale treatment and testing
- Batch scale treatment and testing
- Validation processes for each treatment batch.

The SAQPs would be reviewed annually or more frequently on an 'as need' basis should there be a change in risk, legislative requirements or an identified non-compliance.

1.4.7 Offtake of waste

Following treatment, wastes processed at the WTF would undergo validation testing and reporting to determine if wastes destined for landfill are compliant with chemical composition acceptance criteria.

The final test of materials prior to offtake would be summarised in a report that includes:

- Analytical Results
- A summary of NATA accredited lab reports against batch records
- A validation report for waste supplier and landfill
- Compilation of waste disposal facility documentation, including field testing (where applicable).

Offtake would occur between 7 am and 6 pm Monday to Saturday and 8 am to 6 pm Sundays and Public Holidays.

Treated or stored materials at the Site would be reprocessed, reused or disposed of, as described below.

Reprocessing

Recovered recyclable materials from physical screening such as timber, brick, plastics and metals would be suitable for further reprocessing and recycling. Following testing, these materials would be delivered to a third party resource recovery facility for recycling.

Reuse

Treated water and some soils, following treatment and validation, would be suitable for on and offsite reuse. On site reuse of water would include dust suppression and irrigation. Offsite soil reuse would include fill and other civil uses.

Disposal

A majority of treated and stored wastes would be destined for landfill or disposal to sewer. Materials (aside from packaged waste) must be treated to meet landfill acceptance criteria for solid waste or trade wastewater criteria (as defined by Sydney Water) for liquid waste.

1.4.8 Mass balance

The flow of materials through the Site is summarised in Figure 1-13, which also details the mass balance of waste materials to be treated and stored at the Site.

Prestons Waste Treatment Facility – Updated Project Description

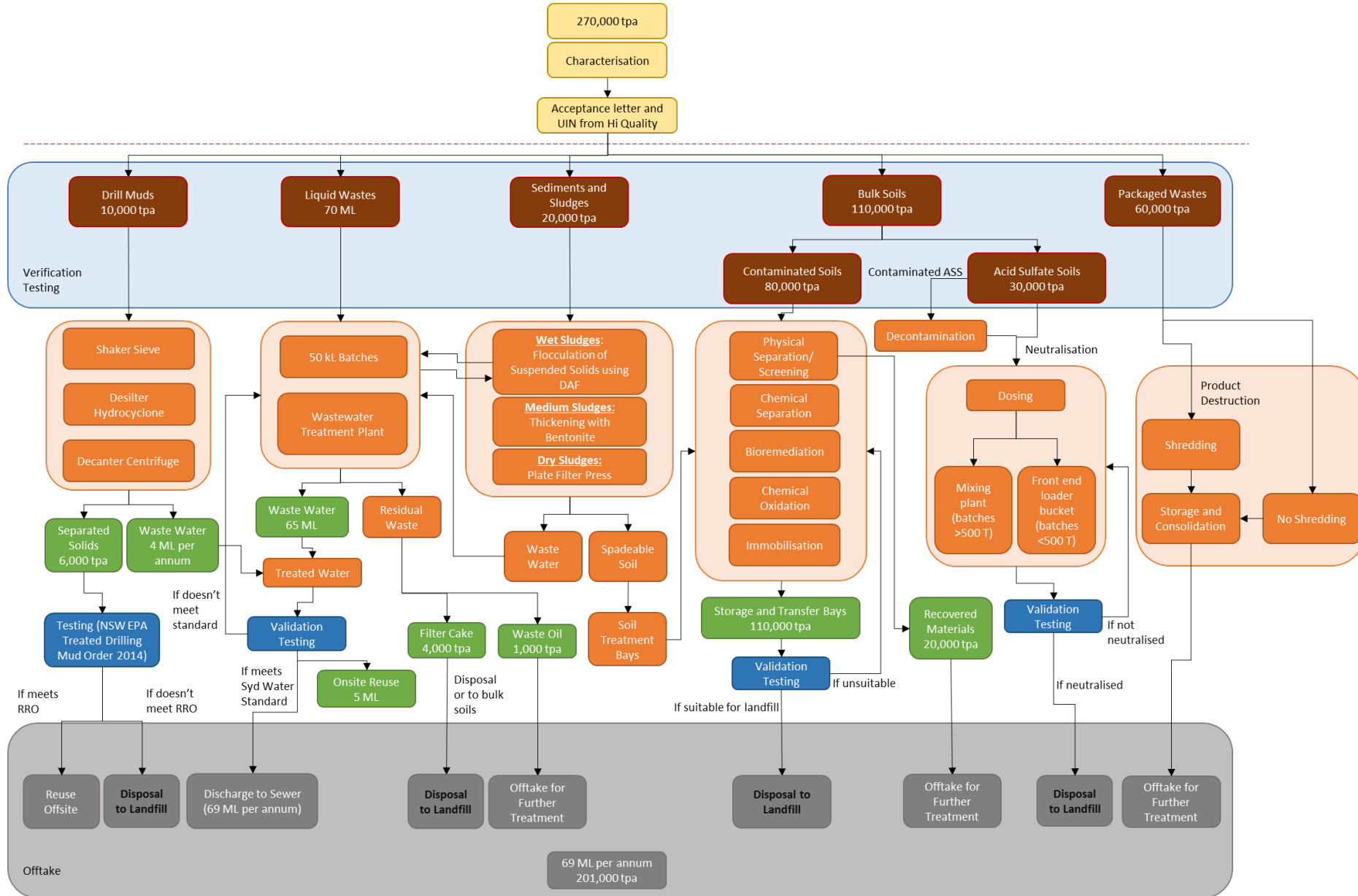


Figure 1.15: Site mass balance and process flow

1.4.9 Water balance

The water requirements for the Site are summarised in Table 1-7 below.

Table 1.7: Water requirement at full site operations (Stage 2)

Source	Usage	kL/year
Staff Amenities		
Potable Water	Toilet	68
	Wash Basins and Kitchen Sinks	49
	Dishwasher	9
	Shower	4
	Total Water Usage for Staff Amenities	130
Process Application and Dust Suppression		
Rainwater re-use and Potable Water	Dust Suppression and Moisture Conditioning (all activities)	1,000
	Wheel Wash and Truck Wash	2,500
	Bioremediation	500
	Total Process Application and Dust Suppression	4,000
Total Water Requirement at the Site		4,130

Water collected through the rainwater tanks at the Site could feasibly supply up to 2,000 kL per annum, constituting 50% of the non-potable water requirement for Stage 2 operations. Opportunities for rainwater collection and reuse would be investigated during detailed design.

Where treated wastewater meets the relevant criteria it may be re-used on site for dust suppression and irrigation.

1.4.10 Contingencies

The Site would operate based on a maximum volume of waste material on site at any one time. The Site will not rely on frequent or ongoing deliveries and would accept waste materials on a case-by-case basis.

As a result, additional space provision for contingency would not be required. In the event of machinery downtime, Hi-Quality would cease to accept any new waste loads until operational capacity has been restored.

Specific waste type related contingencies are detailed in the following sections.

1.4.10.1 Packaged wastes

Packaged chemical waste and packaged waste for destruction would be limited to a maximum of 1,000 tonnes or material onsite at any one time. This volume of material can be appropriately stored in the designed holding area until the backlog of material is removed.

1.4.10.2 Bulk soils and sludges

The on site storage of bulk soils would consist of a combined on site storage total of all soils received for treatment (across all treatment categories), dried drillers mud and dried slurries awaiting treatment and/or assessment. All bulk soils and sludges would not exceed 800 m³ at any one time on Site.

1.4.10.3 Acid sulfate soils

ASS would not be stored on site for extended period of time and is to be delivered to Site for prompt treatment only. In the event that treatment by the primary method, i.e. high shear mixing is not possible, no additional soils would be accepted at the Site and exportation from the source site for transport for treatment at Prestons WTF is to cease. Material on Site would be treated by neutralisation using alternate means (e.g. physical mixing with excavator and neutralising agent) and validated against the verification criteria for the soil treatment procedure.

Treated material would be removed from Site, and no additional material would be imported until the primary treatment method is re-established.

1.4.10.4 Drill muds

Untreated drill mud would be limited to 250 m³ storage capacity of dedicated on site uncontaminated detention tanks. No additional portable storage vessels would be permitted to be used on Site for the purpose of storing untreated drill muds.

Liquid waste generated as a result of on site treatment would be handled in accordance with liquid waste storage and treatment requirements.

Slurries that are free of excess water content will be considered classified as “bulk soil” and storage capacity will be combined with that of bulk soil. Combined dry drill mud and bulk soils will not exceed 1,500 m³.

1.4.10.5 Liquid waste

On site storage of liquid waste would be limited by the available storage capacity of approved permanent onsite detention tanks with a maximum storage capacity of 2 megalitres.

1.4.11 Non-conforming waste

As described above, prior to scheduling the receipt of any waste types, a Acceptance Letter and UIN must be prepared by Hi-Quality and submitted to the waste generator. The Acceptance Letter would be contingent upon receipt of NATA laboratory testing results for the waste material, ensuring that only wastes covered by the Site EPL and suitable for treatment at the Site are accepted.

Upon arrival at the Site, delivery drivers would be required to provide the Acceptance Letter and UIN to the weighbridge operator, who would confirm the consignment details of the load. Any deliveries that fail to produce the Acceptance Letter and UIN or whose load does not match the consignment details would be rejected from the Site.

Each waste load would be stored separately and would not undergo batching or mixing. Any waste load that is unloaded and does not match the description and testing results would be re-loaded and removed from Site.

1.4.12 Waste tracking

Waste tracking would be completed in accordance with relevant statutory regulations. Hi-Quality maintains a waste tracking system that records the following:

- Waste type
- Waste form and waste code (including Consignment Authorisation number) consistent with the Controlled Waste National Environment Protection Measure (NEPM)
- Vehicle transport details
- Weighbridge details (waste codes, consignment authorisation number and total tonnage)
- Contaminants of concern
- Waste destination and transporter details.
- Documented limits for any wastes that are subject to Chemical Control Orders (CCOs), noting that the NSW EPA Waste Classification Guidelines provide criteria for the following:
 - Limits for Aluminium Smelter Wastes (Fluoride / Cyanide).
 - Limits for solids contaminated with polychlorinated biphenyls (PCBs).
 - Oranotins;
 - Schedule Wastes.

1.4.13 Testing and validation

Following treatment, all outputs would be tested to determine post-treatment contaminant loads and confirm success of the treatment methodology. Only wastes that meet landfill acceptance criteria would be disposed of at an appropriately licenced landfill. Any waste intended for landfill that does not meet landfill acceptance criteria would undergo further treatment or be disposed of at an alternative appropriately licenced facility. Assessment and characterisation of the material for offsite disposal would be undertaken in accordance with the requirements outlined in the *NSW EPA 2014 Waste Classification Guidelines*.

Samples for testing would be sent to a NATA accredited laboratory.

Further detail of testing and validation protocols would be developed in accordance with EPA requirements and industry best practice and documented in the SAQP for the relevant waste treatment process.

1.4.14 Traffic and access

Site access and egress

Site access would be from Whyalla Place. Heavy vehicles will utilise separate Site access from light vehicles, as identified in Figure 1-5. Heavy vehicles would access the Site from Whyalla Place via the northern heavy vehicle driveway, proceed over the weighbridge to weigh in and confirm approval of consignment, and proceed into the building for unloading or loading. Heavy vehicles would then proceed to weigh out and exit the Site via the southern heavy vehicle driveway onto Whyalla Place.

Light vehicles would enter and exit the Site onto Whyalla Place from the new driveway between the two heavy vehicle access and egress driveways.

Weighbridges

A dual-lane 19 metre weighbridge would be located internal to the warehouse at the northern roller shutter doors, as illustrated in Figure 1-5. Heavy vehicles would utilise the weighbridge to weigh in, and the weighbridge operator would be responsible for verifying that consignments have prior approval.

1.4.15 Vehicle movements associated with delivery and offtake

At full operation, up to 83 heavy vehicles on average would access the Site per day for waste delivery and offtake. On peak days (Mondays or Fridays) up to 107 trucks may utilise the Site, according to the PeopleTrans Traffic Impact Assessment prepared for the EIS.

The breakdown of vehicle type and numbers adopted from the Traffic Impact Assessment prepared by PeopleTrans for the EIS is provided in Table 1-8.

Table 1.8: Summary of heavy vehicle types and average movements at the site at full operational capacity

Waste Type	Vehicle Type	Number of Vehicles per annum	Number of Vehicles per day (365 days)
Bulk Soil and Acid Sulfate Soils	Tipper truck or Truck and dog	3,929 (incoming) 2,503 (outgoing) Total: 6,432	18
Sludges	Vacuum tanker (various capacity and length)	1,429 (incoming) 2,143 (outgoing) Total: 3,572	10
Drill Muds	Vacuum tanker (various capacity and length)	286 (incoming) 273 (outgoing) Total: 559	2
Packaged Waste	Flatbed trucks	3,000 (incoming) 2,143 (outgoing) Total: 5,143	15
Liquid Waste	Vacuum tanker or bulk liquid tanker (various capacity and length)	7,000 (incoming) 6,679 (outgoing) Total: 13,679	38
Total trucks per day			83

Note: The total trucks per day in Table 1-8 and the count identified in the Traffic Impact Assessment prepared by PeopleTrans has a discrepancy of two trucks per day – the TIA combines all trucks incoming and outgoing across all waste streams, whereas the summary above divides it by waste stream. As a result, there is a rounding difference between the two summaries.

Details for vehicle queuing on Site are provided in the Operational Traffic Management Plan (OTMP) available in Appendix G of the submissions report

1.4.16 Operation hours

The Site would receive waste 24 hours a day, while processing and dispatch operations would be undertaken between 7 am and 6 pm Monday to Saturday and 8 am to 6 pm Sundays and Public Holidays. These hours would apply for both Stage 1 and Stage 2 operations.

1.4.17 Workforce

A total of up to 10 personnel is estimated for the operation of the WTF, whilst four people would be required outside of operational hours for receipt of material. Stage 1 operations would require eight staff for operation of the WTF.

Staff per shift and shift times for operations are as follows:

- Day Shift (7 am-3pm) 10 staff maximum;
- Afternoon Shift (3 pm-11pm) 4 staff maximum;
- Night Shift (11 pm-7am) 4 staff maximum;
- Up to a maximum of 30 employees utilising the office space.

In total, 48 staff would be employed at the Site, however due to shift times all employees would not access or be on the Site at the same time.

1.5 Plant and equipment

Plant and equipment required for Site operations include:

- Mobile soil screen
- Front end loader
- Excavator (12 tonne)
- Dump truck (6 to 8 tonne)
- Mobile high sheer mixer
- Ribbon mixer Forklift
- Shredder
- Bioremediation equipment such as GORE (or similar material) covers, and aeration systems
- Drill mud dewatering plant (storage tanks, shaker sieve, desilter hydrocyclone, decanter centrifuge and holding tank)
- Wastewater treatment equipment (holding and mixing tanks, clarifier, dissolved air flotation, filters, anion exchange resin, and plate and screw press)

1.6 Storage of reagents

Reagents are chemicals or mixtures used in chemical analysis and reactions and would be used at the Site to treat contaminated soils and water. Reagents would be stored internal to the building and used in treatment processes described in Section 1.4.6. Where required storage solutions may be used to all for stacking of reagents, buffer distances would be maintained as appropriate. The following materials would be stored on site (Table 1-9).

Table 1.9: Storage of reagents and other substances at the Site

Material	Quantity
Cement (stored within cement silo see Figure 1-6)	50 t
Reagents	
Hydrogen peroxide (Dangerous Goods (DG) Class 5.1)	2 t
Potassium permanganate (DG Class 5.1)	1 t
Sodium persulphate (DG Class 5.1)	1 t
Ferrous sulphate (powdered)	5 t
Bacteria (stored in liquid form)	1 t
Urea	5 t

Super phosphate (powdered)	5 t
Biodegradable surfactant	2 t
Polymer (powder or liquid)	2 t
Finely crushed limestone or 'aglime'	20 t
Primary cementitious stabilising agents (Ordinary Portland Cement (OPC), Ground Granulated Blast-furnace Slag (GGBFS), pulverised fuel ash, cement kiln dust)	50 t
Secondary stabilising agents (Lime, sodium silicate, carbons, organophilic clays, natural pozzolans, bentonites)	50 t
Aluminium sulphate (28% w/w or powdered)	5 t
Hydrochloric acid (37% w/w) (DG Class 8)	5 t
Caustic soda (30% w/w) (DG Class 8)	5 t
Magnesium oxide (powdered)	5 t
In addition, the following reagents and volumes would be stored at the Wastewater Treatment Plant compartment within the bunded chemical dosing area:	
Hydrochloric Acid	2 t
Caustic soda	2 t
Aluminium sulfate	2 t
Polymer	2 t
Activated Carbon	2 t
Magnesium Oxide	2 t
Ferrous sulfate	2 t

The on site storage requirements for other reagents would be as follows:

- During cement would be stored in silos located in the southern warehouse building extension. The silos would be fitted with overflow protection.
- Corrosive substances (Class 8) would be stored and handled by following the methods outlined in AS 3780-2008 The storage and handling of corrosive substances.
- Storage and handling of DG Class 5.1 oxidizing substances would be undertaken in accordance with AS 4326-2008, The storage and handling of oxidizing agents.
- Liquids would be stored in IBC's located in a storage area adjacent to the office and amenities block internal to the shed.
- Powders would be stored in bags located in a storage area adjacent to the office and amenities block internal to the shed.

The application of these treatment chemicals would be via enclosed automated dosing systems minimising the potential for worker exposure to the reagents.

1.7 Capital investment value

The Proposal would have a Capital Investment Value (CIV) of approximately \$6,376,000 (excl GST). Refer to Appendix P of the EIS for detailed calculation of the CIV for the Proposal.

1.8 Comparison to similar facility

Hi-Quality own and operate a similar facility in Yatala, Queensland, in which 350,000 tpa of contaminated soils, sludges and liquids are received, treated, and sent for disposal following validation. The Yatala facility is located at 12 Byte Street, Yatala QLD, and is formed of three adjacent sheds with an adjoining office and amenity block, with approximately 3,400 m² of floorspace utilised for operations. In comparison the Prestons facility would receive 270,000 tpa and has an existing warehouse of 4,097m² and office facilities. The Proposal would expand the existing warehouse area by 1,300m² and utilise the existing office space for Stage 2 of the Proposal.

The Yatala facility commenced operating in September 2021 and holds an Environmental Authority (EA0002264) to conduct the following activities:

- Operating a facility for receiving and mechanically reprocessing, in a year of more than 10,000t of category 1 and 2 regulated waste and general waste
- Operating a facility for receiving and either reprocessing or treating, in a year of more than 10,000t of category 1 and 2 regulated waste
- Transporting of regulated waste
- Operating a facility for receiving and sorting, dismantling, baling or temporarily storing general waste and category 1 and 2 regulated waste

No enforcement actions have been recorded against the Environmental Authority for the Yatala facility. The closest residential receiver to the Yatala facility is approximately 800 metres to the southwest.

The types of waste received at the Yatala facility are comparable to those proposed to be received at the Prestons facility. The Yatala facility undertakes the same waste treatment activities, with the exception of accepting Asbestos waste, as has been described in this Project Description.

Annexure A. Waste Type and Treatment Table

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
Packaged Waste - (in drums or IBCs) comprising various waste types both hazardous and non hazardous		60,000 tpa	Stored Stage 1 and 2	Several different types of packaged waste are proposed to be accepted at the facility for the purpose of storage and offsite disposal at a licensed facility. Processes for handling and management of the material will depend on the material type, as described below			
	Packaged Waste for processing / destruction Eg: - Reject dry food products - Faulty clothes Off spec consumables		Stage 1 and 2	<ul style="list-style-type: none"> Material received to site will be non-contaminated, inert, and pre-classified GSW Material to be accepted for the purpose of destruction and offsite disposal. Material consists generally of consumer items that are off specification, rejects or past expiration dates. Processing will include shredding. 	<ul style="list-style-type: none"> Material to be fed through a shredder Processed material to be stored in stackable containers Processed material to be relocated to material storage bays Material will be loaded to vehicles and transported offsite for disposal in accordance with waste classification under the <i>Protection of the Environment Operations Act 1997</i> 	N/A	Offsite to a licensed landfill facility, likely as General Solid Waste (GSW) putrescible and non-putrescible.
	Packaged Waste – assorted industrial chemicals in Table 2 of Appendix C i.e. - Cyanides (inorganic) - Cyanides (organic) - Material containing PCB's, PCN's, PCT's or PBB's - Highly odorous organic chemicals (including mercaptans and acrylates) Polychlorinated dibenzo-p-dioxin (any congener), Reactive chemicals			Stage 1 and 2	<p>Known received chemicals</p> <ul style="list-style-type: none"> Material to be accepted, consolidated and stored in specified and suitable onsite storage locations while appropriate disposal options are identified. For known materials documentation for MSDS, storage and handling received prior to receipt onsite. Containers are to remain sealed for known materials. <p>For unknown materials</p> <ul style="list-style-type: none"> Containers not labelled or unknown to be only opened for sampling. Unknown material to be stored in a dedicated "assessment" bay prior to classification. Once classified it will be relocated to general storage with like materials as per Dangerous Goods Code. 	Nil. Material proposed for storage prior to offsite disposal only.	N/A
Acid Sulfate Soils		30,000 tpa	Stage 1	Receipt of pre-assessed ASS/PASS for onsite treatment and neutralisation. The treatment methodologies have been divided into management of potentially contaminated ASS/PASS and "VENM" ASS/PASS as the treatment and disposal procedures will differ.			

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
	"VENM" Acid Sulfate Soils or Potential Acid Sulfate Soils		Stored and treated during Stage 1 and Stage 2	<ul style="list-style-type: none"> Material consisting of ASS/PASS which are defined as VENM in accordance with <i>Protection of the Environment Operations Act</i>. Receipt both PASS and ASS that has been pre characterised and classified with dosing rates. Soil to be received onsite for immediate treatment. Material to be validated for neutralisation. Treated soils placed for storage awaiting offsite disposal. No Acid Sulfate Rock is to be received onsite. 	<ul style="list-style-type: none"> On receipt to site, material to be offloaded and stockpiled in prepared storage bay for immediate treatment Soils to be loaded directly into mobile high shear mixer for treatment Mobile high shear mixer contains automatic reagent (Aglime) dosing based on requirement for each load. Treated soils to be transferred to storage bays for validation of neutralisation process Validated material to be disposed of offsite 	Complete neutralised acid generating potential	<ul style="list-style-type: none"> Offsite to a licensed landfill facility. Brandown (EPL 5186) in Kemps Creek and Hi-Quality's licensed landfill in Windellama (EPL 10398) is licensed to accept General Solid Waste (GSW)
	Contaminated Acid Sulfate Soils or Potential Acid Sulfate Soils		Stored and treated during Stage 1 and Stage 2	<ul style="list-style-type: none"> Receipt both PASS and ASS that has been pre characterised and classified with treatment rates. Contamination status of the soils will be documented in the classification prior to acceptance to site to enable a treatment methodology to be developed. Treatment procedure will be customised to reflect the requirements for the material depending on the chemical contaminants. Bench testing to be undertaken to prove viability in instances where non standard contaminants of concern (COCs) are present. No Acid Sulfate Rock is to be received onsite. 	<ul style="list-style-type: none"> Treatment process will be developed specifically for the material based on the specific contaminants of concern present in the soils and proven by bench testing prior to receipt onsite. If anthropogenic material is present, physical screening using appropriate screen. Screened soils to be loaded directly into mobile high shear mixer for treatment ASS/PASS to be limed prior to next step treatment Soils to be classified under Waste Classification Guidelines 2014. 	Complete neutralized acid generating potential + Stabilization of specific COC to Restricted Solid Waste (RSW) or GSW concentration levels	<ul style="list-style-type: none"> Offsite to a licensed landfill facility licensed to accept RSW or GSW (as appropriate) based on revised waste classification report post treatment
Bulk soils		110,000tpa total (including ASS)	Stages 1 and 2	This category relates to all soils and dried sludges that require treatment onsite.	Depending on the contaminants present in the soils, different strategies will be applied to the waste, however a summary of the processes that could be applied are below.	--	--
	PFAS contaminated Soil		Stored only during Stage 1 and Stage 2	<ul style="list-style-type: none"> PFAS soils to be accepted onsite following classification and characterization. Storage in dedicated PFAS Soil storage area. Soils to be held onsite pending redirection for offsite disposal to NSW or interstate licensed disposal facilities <p>Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal.</p>	Nil Proposed	N/A	Offsite to NSW or interstate licensed treatment and disposal facility

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
	Separation – Screening	--	Stages 1 and 2	<p>Screening is a process that will be applied to soils to help maximise the amount of resource recovery. This process is targeted to at the removal of inert waste such as concrete, brick, timber, tile from soils prior to treatment will minimise waste generation and optimise the treatment processes.</p> <p>Residual soils will continue down the treatment process.</p>	<p>Three different processes can be applied depending on the primary treatment process and include:</p> <ul style="list-style-type: none"> Physical screen attached to mobile high shear mixer, to remove oversize material during the loading process Mobile screen Excavator with screen/sieve bucket <p>The processes can be applied in a variety of combination due to the modular state of the equipment to effectively sort material to maximise treatments.</p> <p>Recovered inert waste will be stockpiled in storage bays awaiting offsite removal.</p>	Material to be pre-classified under waste classification guidelines 2014, or comply with acceptable description for recycling.	<ul style="list-style-type: none"> Pre-classified waste to be disposed of as per requirements (likely GSW) to a licensed landfill facility Recyclable material to be taken to a recycling facility with an EPL licensed to accept that type of waste.
	Separation – Chemical	--	Stages 1 and 2	Principally applied to heavily hydrocarbon impacted sludges containing Non Aqueous Phase Liquid (NAPL). This is essentially a physical settling (gravity separation process) that would allow sludges, free water, and oils to be physically separated based on their molecular density.	<ul style="list-style-type: none"> Material for treatment will be placed into treatment pits Separated phase liquid to be collected and sent for liquid waste treatment. Separated oils to be stored for offsite disposal Separated sludges to be processed as solid waste 	This is considered to be a pre-treatment process. This process alone is not likely to result in soils being suitable for disposal and therefore is not used for this intention.	This is considered to be a pre-treatment process. This process alone is not likely to result in soils being suitable for disposal and therefore is not used for this intention.
	Chemical Oxidisation	10,000tpa	Stages 1 and 2	This process will be optimised for soils contaminated with persistent organic pollutants such as chlorinated Hydrocarbons, PAHs and pesticides.	<ul style="list-style-type: none"> On receipt to site, material to be stockpiled in prepared storage bay in batches Batches to be loaded into mobile high shear mixer for treatment Oxidant (peroxide, potassium permanganate or sodium persulphate) to be automatically dosed based on requirement for each load. Treated soils to be transferred to storage bays and left to cure (approx. 24-48h) After curing, batches to be validated and classified for offsite disposal. 	Minimum treatment to levels below Restricted Solid Waste Levels in 2014 WC G/L	Offsite to licensed landfill for Restricted or GSW Waste as determined by the Characterisation testing during validation
	Treatment of TRH PAHs Phenols Chlorinated hydrocarbons Some pesticides/herbicides						
	Bioremediation	10,000tpa	Stages 1 and 2	Only certain soils will be identified as suitable for bioremediation. The main considerations being contamination concentration, contaminant of concern and soil type. Where soils contain organic compounds are present that have an opportunity to destroy contaminate mass are identified for candidates for bioremediation. Screening and suitability bench testing to be conducted to determine final processes.	<p>Processes include</p> <ul style="list-style-type: none"> Treatment to be undertaken in batches. Reagents will be dosed via an enclosed automated liquid dosing system and mixed to increase contact Materials to be sorted into biopiles. Soils will be cured in biopiles with GORE cover system (or similar) with air sparging or turning for aeration Gas collection system (part of the HVAC system onsite) will be used and gasses passed through an activated carbon scrubber. 	<p>Minimum treatment to levels below Restricted Solid Waste Levels in 2014 WC G/L</p> <p>Or</p> <p>To concentrations permitting the further treatment by immobilisation as appropriate to the contaminants and</p>	<p>Offsite to licensed landfill for Restricted or GSW Waste as determined by the characterisation testing during validation</p> <p>Or</p> <p>As determined by the results of immobilisation works.</p>
	For treatment of hydrocarbons, some PAH impacted material, some heavier coal tar and pesticide contaminated soils.						

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
				<ul style="list-style-type: none"> Soil types are to be assessed on case-by-case basis to determine suitability for bioremediation. Aerobic techniques to be used include: <ul style="list-style-type: none"> Biopiles Composting A designated maximum volume of onsite bioremediation volume will be set for any material onsite at any one time. 	<ul style="list-style-type: none"> Post treatment, validation of soils to be undertaken to confirm completed bioremediation process 	chemical properties of the soils.	
	Immobilisation	60,000tpa	Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Aim to treat metals, metalloids, some PAH impacted material, some heavier coal tar and pesticide contaminated soils. Chemical immobilisation and micro encapsulation to be used. Immobilisation to be achieved through the addition of cementitious or pozzolanic binders Specific immobilisation processes will be developed and Specific exemptions applied for with NSW EPA. 	<p>Specific processes will be developed and outlined as part of the application for specific immobilisation exceptions. Refer to specific exemptions for details of proposed works.</p> <p>Options are available for secondary binders in the event that further works are required to increase durability of final mix.</p> <p>Basic processes for material handling and mixing are:</p> <ul style="list-style-type: none"> On receipt to site, material to be stockpiled in prepared storage bay in batches Batches to be loaded into mobile high shear mixer for treatment Binders (such as cement, ground granulated blast furnace slag or cement kiln dust) to be automatically dosed based on requirement for each load. Treated soils to be transferred to storage bays and left to cure After curing, batches to be validated and classified for offsite disposal. 	Minimum treatment to levels below Restricted Solid Waste Levels in 2014 WC G/L	Offsite to licensed landfill for Restricted or GSW Waste as determined by the characterisation testing during immobilisation validation
General Immobilisation Waste Approvals		60,000 tpa		Material to be received and treated onsite as per the enforced General Approval relating to that specific waste type			
	Cattle dip contaminated soil Approval No. 1999/03		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Soils to be accepted onsite following classification and characterisation. Storage in dedicated soil storage area. Soils to be held onsite pending redirection for offsite disposal to licensed disposal facility Collection of all permits, authorisations and travel 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
				approvals prior to removal offsite for disposal.			
	Ash, ash contaminated natural excavated materials or coal contaminated natural excavated materials Approval No. 1999/05		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> • Soils to be accepted onsite following classification and characterisation. • Storage in dedicated soil storage area. • Soils to be held onsite pending redirection for offsite disposal to licensed disposal facility • Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Used oil absorbent materials Approval No. 1999/06		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> • Waste to be accepted onsite following classification and characterisation. • Storage in dedicated soil storage area. • Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility • Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Tanalith E treated timber waste Approval No. 2000/08		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> • Waste to be accepted onsite following classification and characterisation. • Storage in dedicated soil storage area. • Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility • Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Copper-Chrome-Arsenate (CCA) treated timber waste Approval No. 2001/11		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> • Waste to be accepted onsite following classification and characterisation. • Storage in dedicated soil storage area. • Waste to be held onsite pending redirection for offsite 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
				<ul style="list-style-type: none"> disposal to licensed disposal facility Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 			
	Creosote treated timber waste Approval No. 2001/12		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Waste to be accepted onsite following classification and characterisation. Storage in dedicated soil storage area. Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Coal tar contaminated soil from former gasworks sites General Approval Number: 2005/14		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Waste identified as coal tar contaminated soil from former gasworks sites is to be classified and characterised prior to receipt to Site. Material to be accepted onsite and placed for storage in prepared storage bay. 	<ul style="list-style-type: none"> Treatment as per General Approval 2005/14 through the addition of calcium or magnesium oxide based cement. Soils to be loaded into mobile high sheer mixer for treatment Reagent to be automatically dosed based on requirement for each load not exceeding 2:1 ratio reagent to waste. Treated material to be stockpiled in prepared areas for validation of treatment process Validated material to be disposed of offsite 	SCC not to exceed the requirements outlined in Section D of the 2005/14 General Approval.	Offsite to a licensed landfill facility, licensed to accept treated Coal tar contaminated soil from former gasworks sites waste subject to the immobilisation approvals
	Coal tar contaminated oyster sticks Approval No. 2007/16		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Waste to be accepted onsite following classification and characterisation. Storage in dedicated soil storage area. Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
	Metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials Approval No. 2009/07		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Waste to be accepted onsite following classification and characterisation. Storage in dedicated soil storage area. Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Granular activated carbon waste Approval No. 2017/01		Stored and treated by immobilisation, Stages 1 and 2	<ul style="list-style-type: none"> Waste to be accepted onsite following classification and characterisation. Storage in dedicated soil storage area. Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal. 	N/A – assessed as per General Exemption	N/A	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
Liquid Waste		70 ML per annum	Treated from Stage 2	<ul style="list-style-type: none"> Liquid waste to be received with laboratory analysis prior to acceptance and organised drop off All liquids to be flash tested prior to offloading from tanker Liquid waste to be received via tanker and pumped to a designated holding tank. Each load to have a consignment number Each holding tank will store like materials and formed into batches of 50 kL for treatment through to validation . e.g. oily water etc and will be use to collect like waste Treatment of liquid waste will be customised for each batch depending on the waste type and identified COCs. 	<p>Due to the variable nature of different water treatment options and processes, details of each process are provided in the Environmental Management Plan (EMP). In cases where a liquid waste has different waste types included, a hierarchy of treatment is to be applied including:</p> <ol style="list-style-type: none"> 1. Oil/water separation 2. Chemical treatment/dosing 3. Precipitation / floccing <p>General pre-treatment of liquid waste would consist of:</p> <ul style="list-style-type: none"> Transfer from holding tank to mixing tank where reagents (acid/caustic, coagulant or polymer) are added and the liquid mechanically mixed, to prepare wastewater for gravity separation 	Below trade waste agreement values	<ul style="list-style-type: none"> Validated liquid waste will be discharged to sewer under Trade Waste Agreement. Separated phase liquids (e.g. hydrocarbon) will be disposed for to a licensed liquid waste facility for recycling. Collected solids to be transferred for onsite treatment as per bulk soils

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
					<ul style="list-style-type: none"> Pre-treated liquid then pumped to conical clarifier to allow suspended solids to settle and oils to be removed via Dissolved air flotation. Solid waste to be removed for treatment as sludge Remaining liquid is pumped through multi media filtration, e.g. sand filter or suitable alternative for particulate removal. <p>Liquids are then treated as per the remaining chemical requirements based on the identified contaminants of concern.</p>		
	Liquid Waste: Hydrocarbons (including TPH and PAH)		Stage 2	Water contaminated with hydrocarbons that has resulted in formation of NAPL. This is generally used as a pre-filter undertaken prior to the commencement of the treatment process.	<ul style="list-style-type: none"> Liquid to be run through a coalescing plate oil separator to remove separate phase hydrocarbons Collected hydrocarbons will be remove to a waste oil tank Remaining liquid pumped for additional treatment based on COCs. 	<p>Below trade waste agreement values</p> <p>Or</p> <p>Treated liquid waste to be sent back for additional treatment and polishing using activated carbon</p>	<ul style="list-style-type: none"> Waste oil – to a licensed facility for oil recycling
	Liquid Waste: Suspended solids very wet sludge		Stage 2	Dirty water (chemically contaminated or not) containing suspended soils	<ul style="list-style-type: none"> Transfer of batch to mixing tank where reagents (acid/caustic, coagulant or polymer) are added and the liquid mechanically mixed, to prepare wastewater for gravity separation Water to be placed into conical based storage tank to allow solids to be collected; Turbid water can be pumped through a Lamella Plate Clarifier and flocced to remove TSS. Collected soils from conical settler and Clarifier to be transferred to “Sludge treatment” Remaining liquid pumped for additional treatment based on COCs. 	N/A	N/A

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
	Liquid Waste: Organics		Stage 2	Treatment method designed for extraction of organic compounds in water	<ul style="list-style-type: none"> Granular activated carbon filtration for hydrocarbon adsorption 	Below trade waste agreement values	<ul style="list-style-type: none"> Validated liquid waste will be discharged to sewer under Trade Waste Agreement. Classification and disposal as per General Exception for activated carbon.
	Liquid Waste: Acidity and alkalinity		Stage 2	Adjustment of pH of the liquid will occur at the completion of the treatment process throughout the addition of acidic or alkaline compounds as required.	<ul style="list-style-type: none"> Liquid placed into a mixing tank and dosed with acid or base to achieve required pH levels at preliminary mixing stage. 	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement.
	Liquid Waste: Heavy metals		Stage 2	Principal method will be the removal of heavy metals from dissolved phase via chemical precipitation	<ul style="list-style-type: none"> Transfer of batch to mixing tank where reagents (Acid/caustic, coagulant, polymer, magnesium Oxide as required) are added and the liquid mechanically mixed 	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement.
	Liquid Waste: Nutrients Nitrates Phosphates – chemically precipitates		Stage 2		<ul style="list-style-type: none"> Granular activated carbon filtration for nitrates adsorption 	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement.
	Liquid Waste: PFAS		Stage 2		<ul style="list-style-type: none"> Granular activated carbon filtration for hydrocarbon and PFAS adsorption Ion exchange filtration for PFAS adsorption and final polishing <p>Other technologies that could be used also include reverse osmosis</p>	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement. Active carbon to be transferred to pre-packaged waste stage area awaiting disposal offsite to interstate licensed treatment and disposal facility
Muds and Slurries	Level 1		Stage 2	Different types of mud and slurries are proposed for acceptance onsite. Procedures for the treatment of Drillers mud received from non contaminated sites and can be assessed under RRO/RRE have been separated from potentially contaminated mud/slurries from other sources			
	Drill Mud	10,000 tpa	Treated from Stage 2	<ul style="list-style-type: none"> Drillers Mud to be received onsite for treatment into prepared storage tanks. Drillers Mud would be dewatered, separated into the liquid and solid waste using a self contained Dewatering and Drillers Mud Plant. 	<ul style="list-style-type: none"> Material separation of solids from liquids Treatment to be undertaken dependent on the liquid content of the sludge and could include: <ul style="list-style-type: none"> Plate filter pressing; 	Soils: No treatment proposed. Soils to be tested against Table 1 of Treaded Drillers Mud RRO 2014 Liquid Waste – as per liquid waste processing/treatment.	Solid Waste - To a facility compliant with the requirements of the RRO/RRE Or Licensed landfill facility based on 2014 waste classification assessment.

Waste Type	Sub-Process	Volume	Stage of Works	Description	Treatment procedure	Treatment Limit	Disposal
				<ul style="list-style-type: none"> Liquid to be treated in the onsite water treatment system Mud to be sampled and assessed allowing characterization with the RRO/RRE for Treated Drilling Mud 2014 	<ul style="list-style-type: none"> Thickening by addition of bentonite Liquid to be treated as per "Liquid Waste" Waste type Separated solids to be transferred for storage and assessment against the requirements outlined in RRO/RRE for Treated Drilling Mud 2014 or Waste Classification Guidelines. Validated material to be disposed of offsite. 		Liquid Waste – onsite dust suppression Or Discharge to sewer under Trade Waste
	Sediments, slurries and sludges (e.g. from non-destructive digging)	20,000 tpa	Stage 2 only	<ul style="list-style-type: none"> Waste to be received onsite for treatment into prepared storage tanks. Waste would be dewatered, separated into the liquid and solid waste. Waste water to be treated in the onsite water treatment system Solid waste to be sampled and assessed allowing characterisation and the appropriate management approach to be determined 	<p>Treatment to be undertaken dependent on the liquid content of the sludge and could include:</p> <ul style="list-style-type: none"> Water to be placed into conical based storage tank to allow solids to be collected; Plate filter pressing; Thickening by addition of bentonite <p>Material will then be transferred to treatment and assessment as solid waste. Liquid to be managed as per "Liquid Waste" Waste type"</p>	<p>No proposed treatment of contaminated proposed. Soils to be classified for offsite disposal. If soils not suitable for disposal as GSW or RSW, soils are to be transferred and treated as per "bulk soils" procedures.</p> <p>Liquid– Refer to Liquid Waste</p>	<p>Offsite to licensed landfill for Restricted or GSW Waste as determined by the characterisation testing during validation</p> <p>Liquid to be transferred to liquid waste processing and disposed of as per "liquid Waste".</p>
Not accepted onsite	Asbestos	0 tpa	Stage 1 and 2	<p>No asbestos to be present in any waste received to site in any form.</p> <p>An unexpected finds protocol will be developed as part of the EMP to outline measures should asbestos be identified within any material brought onto site</p>			