



Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6580/2021/1
Applicant	Owens Group Pty Ltd T/A Enecell Resource Recovery Solutions
ACN	644 001 196
File number	DER2021/000408
Premises	Enecell Resource Recovery Solutions 10 McCook Street Forrestdale WA 6112 Lot 319 on Deposited Plan 63655 As defined by the premises maps attached to the issued works approval
Date of report	11 March 2022
Proposed Decision	Works approval granted

**A/Manager Waste Industries
Regulatory Services**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions, discharges and environmental harm during the construction and operation of activities at the premises. As a result of this assessment, works approval W6850/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary and overview of premises

On 16 July 2021, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). The application is to undertake construction works relating to a category 47 (scrap metal recovery) prescribed premises for the recycling of used lead acid batteries (ULAB) via fragmentation in a battery-breaking hydro-separation (BHS) plant. The premises is located within the Forrestdale Business Park East in the City of Armadale between 0.5 km and 2 km from the residential suburbs of Champion Lakes and Seville Grove.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) that are defined in works approval W6580/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department have considered in line with *Guideline: Risk assessments* (DWER 2020) are outlined in works approval W6580/2021/1.

Where inconsistencies or uncertainty has been identified in the application, the Delegated Officer has assumed the proposal is consistent with the information set out in this decision report.

2.2.1 Construction of premises

The ULAB BHS plant is to be constructed entirely within an existing warehouse at the premises, with construction works proposed under this works approval application limited to the installation of the plant and machinery. Construction works are anticipated to take approximately 3 months, with construction activities undertaken between 7:00 am and 7:00 pm.

The entire existing warehouse and BHS plant area has been constructed on a concrete slab. Additionally, the BHS plant area will be bunded by a 200 mm roll bund to create a secondary containment area of around 170 m³ with sufficient capacity to contain the contents of the largest vessel of the plant, being the water recirculation tanks (capacity 13 kL) and the freshwater tank (capacity 16.5 kL). A 3.75 m³ capacity concrete sump will be excavated to a depth of 1.5 m in the central area of the plant to allow for the recovery of any spills collected within this secondary containment area. Spills pumped out of this area will discharge to the paste sully tanks within the BHS plant so as to reclaim any solids and enable the treatment of liquids via the acid neutralisation unit.

The area of the premises external to the existing warehouse consists of a large trafficable concrete hardstand which is graded to the external stormwater management system at the front of the premises, meaning there is no necessity for site-based retention for stormwater. The Applicant has also laid out the facility to ensure that environmentally hazardous material

required for premises operations is only handled in areas within the warehouse.

The entire premises will be connected to the Western Power electricity grid and a 125 kW back-up generated will be installed in the north western corner of the premises to supply power in the event of an outage for a maximum duration of 4 hours. The site is also connected to the Water Corporation gravity sewer pipe located at the south eastern corner of the site. The Applicant intends to discharge grey water and laundry water, resulting from the cleaning of clothing potentially contaminated by lead, via a high efficiency particulate arrestance (HEPA) filter and at the time of submission, the Applicant had not applied for a Trade Waste Permit.

For noting: The requirement for a Trade Waste Permit for the disposal of wastewater from premises to the gravity sewer is subject to approval by Water Corporation.

DWER will give regard to approvals required for premises by other regulatory agencies, in line with the *Industry Regulation: Guide to Licensing*. As such, DWER has referred the works approval application to Water Corporation for comment.

Advice received from Water Corporation in relation to the Applicant's requirement for a Trade Waste Permit is detailed in Section 4 below.

The Delegated Officer notes that the Trade Waste Permit will contain monitoring requirements for contaminants in discharges of wastewater to the sewer network.

2.2.2 ULAB acceptance

The applicant is proposing to accept ULABs from scrap metal and scrap battery suppliers across the state and intends to process ULABs from cars, trucks, motorcycles, stationary, solar and industrial batteries. Once fragmented, ULABs generally consist of the components outlined in Table 1.

Table 1: Fragmented ULAB components

Component	Description	Weight %
Lead paste	Paste is the term given to the active ingredient in the battery. In a newly manufactured battery, lead oxide is "pasted" into the metallic lead grid. The charge-discharge of the battery over its life results in the lead oxide/dioxide compound forming lead sulphate (PbSO ₄) by a non-reversible side reaction with the electrolyte (H ₂ SO ₄). The paste in a ULAB is typically 80% PbSO ₄ with the remainder PbO/PbO ₂ .	35 to 45%
Grid	The grid component is the metallic lead parts of the battery (grid holding the paste, the busbar [joins the 6x cells of the battery together] and the battery terminals [what we see on the outside of the battery]) which carry the electric charge created by the active material in the battery (the paste).	20 to 30%
Electrolyte	The electrolyte is dilute sulfuric acid (H ₂ SO ₄), with a strength of 10% acid, 90% water.	15 to 20%
Polypropylene	The outer case of the battery is made from polypropylene.	5 to 10 %
Separators and other waste materials	The positive and negative plates in the battery are separated by a silica/polyethylene film, termed separator.	3 to 5 %

Pallets of accepted wrapped and strapped ULABs will be stored in a designated storage area either on pallets or in suitable bins. It is anticipated that less than 150 tonnes of ULABs will be

stored on site at any given time, however the applicant has advised that the storage area will have capacity to store up to 300 tonnes if required.

The estimated throughput of the BHS plant is 15,000 tonnes of ULABs per annum with the maximum design capacity of the plant (calculated based on operations over 22hr a day, 6 days a week for 52 weeks per annum) being 34,320 tonnes per annum. The facility is proposed to operate from 7:00 am to 9:00 pm Monday to Friday.

For noting: ULABs are classified as a Dangerous Good under the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

The Delegated Officer notes that the packaging, transportation and handling of ULABs is subject to requirements of the Australian Battery Recycling Initiative Guidance *Used Lead Acid Battery Recycling – Packaging Guidelines for Used Lead Acid Batteries* and the Australian Dangerous Goods Code 7.5 and Packaging Instruction P801.

2.2.3 ULAB BHS Plant operation

The BHS Plant will recycle accepted ULABs into metallic lead, lead paste and polypropylene. The plant will also produce low value materials which will be sold to outside operators, being Gypsum (estimated volume of 1000 tonnes per annum) and Separators (silica/polyethylene film - estimated volume of 300 tonnes per annum). General wastes consisting of primarily scrap pallets, plastic strapping and general plastics (anticipated volume of approximately 50 tonnes per annum), will be collected and sent to an appropriately authorised facility for processing and/or disposal.

The BHS plant will operate via the following process (as depicted Figures 1 and 2 below):

- 1) ULABs are unloaded from pallets and fed into a hopper and conveyor that directs the ULABs into the battery breaker.
- 2) The battery breaker acts to fragment the ULABs and is located within an enclosed acoustic chamber. It operates under negative pressure and is comprised of multiple hammers and incorporates water sprays to reduce heat and create a slurry. Acidic fumes and mists generated from the battery breaker are collected via an extraction system and directed to a packed bed wet scrubber. An enclosed screw conveyer directs the slurry to the primary vibrating screens.
- 3) The primary vibrating screens separate oversized material (polypropylene chips and separators) that are directed to the primary hydro separation unit. The slurry and undersize material pass through the screens.
- 4) The primary hydro separation unit is operated under negative pressure and removes polypropylene chips, other plastic, lead and metallic parts using the sink/float method. Floating plastics are paddled or skimmed off the top and directed to the PP chips collection bin area. Remaining slurry containing lead and metallic parts, separators and spent electrolyte are directed to the primary and secondary lead grid screws.
- 5) The primary and secondary lead grid screws remove lead grids and terminals via the sink/float method, with these items directed to and stored in the lead grid storage area. The remaining slurry, comprised of separators, spent electrolyte and waste plastics are directed to the secondary vibrating screen and second hydro separation unit.
- 6) The secondary vibrating screen acts to remove separators and any remaining plastic from the process, with the remaining slurry forwarded to the second hydro separation unit. This unit then removes coarse lead paste from the slurry and moves forward fine lead slurry and spent electrolyte to the lead paste filter press.
- 7) The lead paste filter press creates lead cake solids that are stored before being directed to the lead paste bunker for drying and bagging. The remaining spent electrolyte liquids

are directed to the recirculation tank or acid neutralisation tank.

- 8) Spent electrolyte is neutralised through the addition of lime ($\text{Ca}(\text{OH})_2$) in the acid neutralisation tank to produce gypsum (CaSO_4) that is extracted via the gypsum filter press.
- 9) A custom built wet scrubber extracts and treats acidic fumes and mists from the battery breaker, the primary hydro separation unit and lead slurry tanks 1 and 2, which are all operated under negative pressure. Wastewater from the scrubbing system is connected to the plants effluent treatment unit and ultimately to the gypsum filter press.

The BHS recirculating water based process is water negative, using 120 L water per 1 tonne of ULABs, whereby process water flow is maintained via a recirculation tank, supported by neutralisation tanks and additional water sourced from the freshwater tank. Any wastewater pumped out from the shed floor sump will also be injected back into the process. A schematic of the plant is included in Figure 1 below and a flow chart for plant operations is included in Figure 2.

Lead paste and grids obtained from the plant will be loaded into bulka bags of 1 to 2 tonnes each which will be sold to customers within Australia or exported overseas. Recovered polypropylene will also be bagged into bulka bags of 0.5 to 1 tonne and sold on to plastic recyclers.

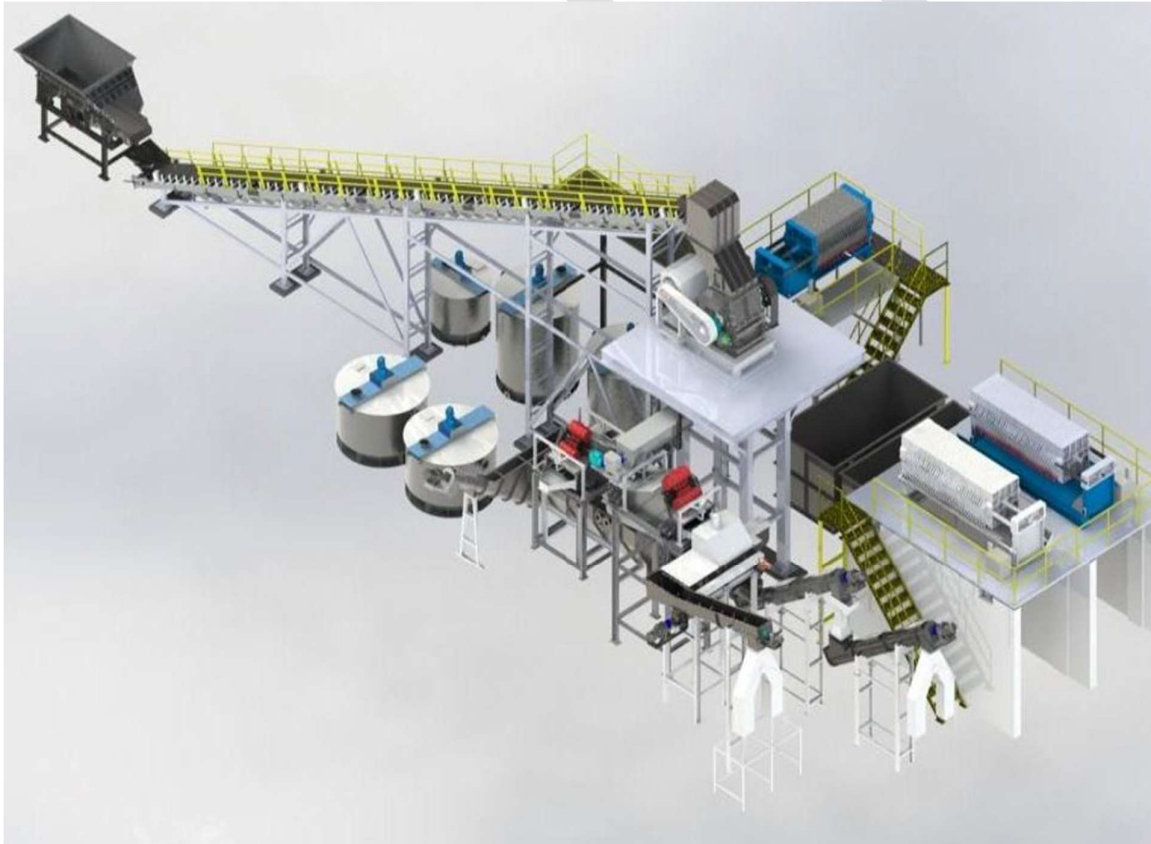


Figure 1: Schematic model of the ULAB battery breaking hydro separation plant

2.2.4 Commissioning period

Once the BHS plant is constructed the applicant proposes to undertake a period of commissioning involving operational testing of the plant and equipment to ensure design specifications have been achieved. The commissioning period is proposed to consist of the following actions:

- Individual component testing (testing of motor functions);
- Up to 2 weeks dry testing to ensure linked units operate in the sequence intended;
- Up to 2 weeks wet testing to ensure liquids are moved through the plant as intended, and to ensure the plant alarms, components and interlocks function correctly; and
- Up to 4 weeks for a trial process of operational testing of the plant under standard operating conditions at a proposed throughput of up to 5 tonnes per hour.

During the trial operational testing period, the Applicant will also monitor both lead and sulfuric acid mist concentrations in the air to confirm compliance with exposure level standards outlined in the *Safe Work Australia Workplace Exposure Standards for Airborne Contaminants*. Monitoring of sulfuric acid concentration will involve determining the concentration within emissions hygiene system and at two 'hot spot' static locations, being the battery breaker and the de-neutralisation tank, as the Applicant has identified these two areas as the most likely points for any emissions to be generated from.

Monitoring of lead concentration will involve the collection of air samples on a cellulose membrane filter from the two identified 'hot spot' locations, with the results of this monitoring to be tested in accordance with the *NIOSH Manual of Analytical Methods*, method 7105. A summary of proposed monitoring is included in Table 2 below.

At the conclusion of the commissioning period and pending the demonstration of compliance with the above standards, the applicant proposes to undertake up to 180 days of time-limited operations.

Table 2: Proposed monitoring specifications during commissioning

Location	Parameters	Method	Duration
Lead concentration testing			
Two hot spot static locations, being within a 5 m radius of the battery breaker and the de-neutralisation tank	Elemental lead and lead compounds	NIOSH 7105	1 test of 8 hr duration undertaken at an area of known flow rate between 1 and 4 L/min Flow rate will be calculated by calibration of the constant flow rate sample pump against a certified flow meter
Sulfuric acid (H₂SO₄) mist testing			
Wet scrubber exit duct	Velocity, temperature and volumetric flow	USEPA Method 2 (NATA accredited)	1 test
	Sulfuric acid (H ₂ SO ₄)	Modified USEPA Method 6	2 tests (each 60 minute duration)

Location	Parameters	Method	Duration
Two hot spot static locations, being within a 5 m radius of the battery breaker and the de-neutralisation tank	Sulfuric acid (H ₂ SO ₄)	NIOSH 6004	2 tests (each ~240 minute duration)
Two employees (personal exposure)	Sulfuric acid (H ₂ SO ₄)	NIOSH 6004	2 tests (each ~240 minute duration)

Key Finding: The Delegated Officer notes that consistent with the *Industry Regulation: Guide to licensing*:

- The component, dry and wet testing activities are considered to be tests for material defects in the constructed equipment and infrastructure, a matter appropriately addressed through an environmental compliance report; and
- The operational testing is considered to be environmental commissioning that would precede any time-limited operations, a matter appropriately addressed through an environmental commissioning report.

The Applicant has been unable to provide treatment specifications for any aspects of the BHS (primarily the wet scrubber) as these aspects are being custom built for the premises after the works approval has been granted.

Further, detailed operational monitoring specifications and management plans for site operations have not been provided as part of the works approval application (discussed in further detail below). The Delegated Officer also considers that controls established at the construction phase will have questionable effectiveness during operations given that no evidence has been provided to support their efficiency to mitigate emissions of lead and/or sulfuric acid mists.

The Delegated Officer also notes that the Applicant's proposed commissioning ULAB throughput is the same as that proposed for general operations (5 tonnes per hour).

2.2.5 Health and Hygiene Management Plan

The monitoring specifications of lead and sulfuric acid mist concentrations in air emissions during the commissioning period have been proposed by the Applicant to assist in the development of a comprehensive Health and Hygiene Management Plan (HHMP) for ongoing premises operations, with the purpose of the HHMP to ensure the health and safety of employees on site.

The Applicant has identified the following substances as significant hazardous chemicals regarding consideration in the HHMP:

- Lead sulphate and lead oxide contained in lead paste, with potential for exposure through process chemicals being adsorbed onto skin, PPE or boots and subsequently ingested or inhaled; and
- Sulfuric acid mist released from weak sulfuric acid solution, with potential for exposure through the inhalation of mist.

The HHMP will act to outline on site processes to reduce health hazards, list the roles and responsibilities of relevant staff and provide an overview of the context and frequency of staff training. The HHMP will specify that the facility will be monitored for lead and sulfuric acid concentrations at a minimum and will outline contingencies where measurements indicate imminent or increasing risks to the health or wellbeing of staff. Regular inspections, audits and atmospheric monitoring will be incorporated into the HHMP to demonstrate that the

infrastructure and operational controls in place at the premises are effective at maintaining exposure levels below the standards outlined in the Safe Work Australia (2019) *Workplace Exposure Standards for Airborne Contaminants*.

To minimise the risk of the transmission of lead offsite, the Applicant will also ensure the HHMP will include operational procedures for the management of PPE and equipment potentially contaminated with lead. The Applicant proposes to implement a changing room with individual locker facilities, showers, toilets and a laundry cupboard. Employees will change into Personnel Protective Equipment (PPE) prior to entering the operational area of the premises. At the end of the shift, PPE will be placed into washing machines, and employees will shower and change into their street clothes before leaving the premises. Used PPE will be washed on site and will not leave the premises, with all laundry water directed to the Water Corporation sewer network in line with the Trade Waste permit.

Washing machines will be wiped down periodically, with used wipes and rags placed into an IBC for disposal offsite. Any equipment or machinery that exits the operational area of the premises will be also cleaned and inspected before it leaves this area. The only item of machinery that will regularly exit this area is the forklift.

Vacuum doors will also be installed at the entry and exit ways into the staff changing rooms and into the warehouse from outside, with the intent of these doors to create an area of negative pressure around employees and/or equipment as they move through the doorways. Any loose particulate matter will then be dislodged and trapped within filters. The Applicant believes that this process will also reduce the risk of transmission to particulate lead to external areas.

Key finding: The Applicants proposed inclusions for the HHMP were referred to the Department of Health (DoH) for comment. Consultation on this matter is detailed in Section 4 of this Decision Report

The Delegated Officer notes the proposed use of vacuum doors as a control for emissions of particulate lead and considers the capacity of these doors to remove particulates as uncertain. As such, the use of vacuum doors as a control will not be considered through the works approvals risk assessment.

2.2.6 Contaminated Sites Act 2003

The premises is classified as 'remediated for restricted use' under the *Contaminated Sites Act 2003* as asbestos containing material may be present in natural soils below the yellow sand fill horizon and/or existing foundation slabs and hardstand. The restrictions of use associated with this classification states that 'the excavation and disturbance of natural or reworked soils below the yellow sand fill horizon and/or existing concrete foundations and hardstandings is restricted except when carried out in accordance with an appropriate occupational health and safety plan for the management of asbestos.

The applicant proposes no excavation works as a part of premises construction except to install the ULAB BHS sump within the warehouse. The sump area will be excavated to a depth of 1.5 m below the existing concrete hardstand. To comply with the premises Contaminated Sites obligations the Applicant has advised that an Occupational Health and Safety Job Plan will be created for the construction of the sump, which will include:

- Isolating the works area and limiting access to relevant personnel and equipment;
- Controlling emissions of dust with water and wetting agents;
- Identification and implementation of PPE requirements;
- Induction and training of staff to minimise airbourne dust exposure and implement decontamination procedures should asbestos be encountered; and

- Outlining the required procedures for the management of asbestos, including the containment/packaging, transportation and disposal at an appropriately licenced facility.

Key finding: The Application and supporting documentation were referred to DoH for comment on the potential impacts to health and environmental associated with any exposure of soil contamination during any excavations below the yellow sand fill layer and/or concrete hardstand.

It is noted that the Applicant may be required to comply with other regulatory requirements in the undertaking of any excavation work and is encouraged to refer to the DoH (2021) *Guidelines for the assessment, remediation and management of asbestos contaminated sites* for further information.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 3 below. Table 3 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 3: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Noise/ vibration	Construction and installation of the ULAB Battery-breaking and hydro separation (BHS) plant	Air / ground transmission causing impacts to health and amenity	Construction to occur within an existing concrete panelled shed. Construction works to only be undertaken from 7:00 am – 7:00 pm Monday to Friday. Complaint register to be maintained.
Stormwater (potentially contaminated by hydrocarbon spills)		Overland runoff via the stormwater management system	Construction to occur within an existing concrete panelled shed. Hydrocarbon spill kits will be available on site. All storage of environmentally hazardous material is under cover. All external areas drain into the local storm water draining system with no onsite retention. All storage of hydrocarbons will be within primary and secondary containment systems. Regular service and maintenance of vehicles will be undertaken.
Asbestos fibres	Excavation works for the construction of the warehouse sump	Air/windborne pathway causing impacts to health and amenity	An Occupational Health and safety Job Plan will be created for the construction of the sump.
Commissioning			
Noise/ vibration	Operation of the BHS plant	Air/ground transmission causing impacts to health and amenity	Operations within existing concrete panel shed, between 7:00am – 9:00pm hours Monday to Friday only. Note: An environmental noise assessment was undertaken on behalf of the Applicant that considered operations occurring at all times, day and night, with findings that operations would be within the prescribed standards of the <i>Environmental Protection (Noise) Regulations 1997</i> . The noise assessment did not consider any potential impacts arising from vibration.
Spills of environmentally hazardous materials	Storage of chemicals required for BHS plant operation and ULAB recycling	Seepage/ overland runoff via the stormwater management system	All operations to be conducted within and enclosed warehouse on a concrete hardstand with a permeability of greater than 1×10^{-9} m/s. Entire processing area (including chemical storage area) will be bunded to create a secondary containment area, with the bund being a minimum of 200 mm high and creating a

Emission	Sources	Potential pathways	Proposed controls
	process		<p>cumulative containment capacity of at least 170 m³.</p> <p>The secondary containment area will drain to a sump of 3.75 m³ capacity, from which captured liquid can be pumped out and be returned to the BHS plant system.</p> <p>All concrete floor within the secondary containment area will have a coating applied that will resist chemical degradation.</p> <p>All tanks, hoses and pipes for the BHS plant will have high/ low level alarms, control and one way valves as appropriate.</p> <p>Spill kits will be available on site.</p> <p>All external areas drain into the local storm water draining system with no onsite retention.</p> <p>Accepted ULABs will meet Australian Battery Recycling Initiative Used lead acid battery recycling packaging guidelines with a maximum 300 tonnes of ULAB stored inside shed within a bunded area.</p>
Stormwater (potentially contaminated with hydrocarbons, lead and other contaminants)		Overland runoff via the stormwater management system	<p>All operations to be conducted within and enclosed warehouse on a concrete hardstand with a permeability of greater than 1×10^{-9} m/s.</p> <p>All external areas drain into the local storm water draining system with no onsite retention.</p> <p>All hazardous material loading/unloading outside of the shed will occur under covered areas.</p> <p>Spill kits will be available on site.</p>
Sulfuric acid mist (H ₂ SO ₄)	Operation of the BHS plant	Air/windborne pathway causing impacts to health and amenity	<p>The battery breaker is fully enclosed and operates under negative pressure.</p> <p>Air from the BHS battery breaker, primary hydro separation unit and lead slurry tanks 1 and 2 will be directed to the wet scrubber.</p> <p>The wet scrubber will be fitted with a negative pressure alarm.</p> <p>HHMP will specify worker health and safety monitoring for potential sulfuric acid emissions, with monitoring conducted at the wet scrubber exit duct, two hot spot static locations and on two employees (personal exposure).</p> <p>Sulfuric acid concentrations within the warehouse will be maintained under the limit set in the Workplace Exposure Standards for Airborne Contaminants (Safe Work Australia, 2019).</p>
Lead		Air/windborne pathway causing	The battery breaker is fully enclosed and operates under negative pressure.

Emission	Sources	Potential pathways	Proposed controls
		<p>impacts to health and amenity</p> <p>Overland runoff via the stormwater management system</p> <p>Contact of lead with machinery or PPE of employees</p>	<p>All aspects of the BHS plant (except the conveyor belt leading to the battery breaker) are fully enclosed and incorporate high/ low level alarms, control and one way valves as appropriate.</p> <p>The BHS plant operates as a wet process within an enclosed shed, vacuum doors will be sealed during all processing of ULABs.</p> <p>The BHS plant will be periodically washed down to remove particulates, there will be limits on the persons and vehicles that can enter the operational area during this activity.</p> <p>Forklifts will be decontaminated when leaving the BHS operational area.</p> <p>All operations to be conducted on a concrete hardstand with a permeability of greater than 1×10^{-9} m/s.</p> <p>Entire processing area will be bunded to create a secondary containment area, with the bund being a minimum of 200 mm high and creating a cumulative containment capacity of at least 170 m³.</p> <p>The secondary containment area will drain to a sump of 3.75 m³ capacity, which can out pump any captured liquid to be returned to the BHS plant system.</p> <p>All concrete floor within the secondary containment area will have a coating applied that will resist chemical degradation.</p> <p>Employees within the BHS operational area will follow standard decontamination procedures.</p> <p>HHMP will specify worker health and safety monitoring for potential lead emissions.</p> <p>Vacuum doors will remove particulates from PPE and equipment existing the operational area.</p>
Wastewater	Disposal of grey water and laundry water potentially contaminated with lead to the Water Corporation sewer network	Discharge to the environment/ offsite disposal	<p>All wastewater will pass through a HEPA filter prior to disposal to the sewer network.</p> <p>Disposal will be conducted in accordance with the Trade Waste Permit in place at the premises (currently under application).</p>
Fire and fire washwaters	Fire event at the premises	Multiple (air, liquid and solid emissions/	<p>Fire fighting equipment is located at strategic points across the premises.</p> <p>Incompatible chemicals will be stored in separate</p>

Emission	Sources	Potential pathways	Proposed controls
		discharges)	<p>areas.</p> <p>Secondary containment area and warehouse sump may have some capacity to contain fire washwaters prior to material being pumped from site.</p> <p>A fire response procedure will be developed that addresses primary containment of fire washwater within the secondary containment area, and containment within the external stormwater management system.</p>

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 4 and Figures 3 and 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 4: Distance to sensitive human and environmental receptors from premises

Public health and amenity receptors	Distance from prescribed activity
Residential premises	600 m east of the premises boundary Within 670 m north north-west of the premises boundary 750 m west of the premises boundary
Land zoned parks and recreation (regional scheme)	1,250 m north-east of the premises boundary 875 m west of the premises boundary
Land zoned special rural	500 m north-west of the premises boundary
Land zoned residential	1,300 m west of the premises boundary
Land zoned forms of commercial and industrial (see Figure 4 below)	Surrounding the premises, all lands directly adjacent the premises are zoned 'general industrial'.
Environmental receptors	Distance from prescribed activity
C-class conservation reserve ¹ (contained threatened and/or priority ecological communities)	400 m south-west of the premises boundary
Forrestdale lake nature reserve	2,500 m south-west of the premises boundary
Local stormwater management system (drains into Forrestdale main drain)	Adjacent premises (Southern River Catchment of the Canning River)
Underlying groundwater <i>Rights in Waste and Irrigation Act 1914</i> <i>Perth groundwater area – non-potable use</i>	~3.5 mBGL (natural surface 25.5 mAHD, water table ~22.0 mAHD - source: <i>Perth groundwater map</i>)
DBCA vested lands/ Regional parks	1,250 m north-east of the premises boundary

Threatened and priority ecological communities and priority ecological communities (<i>buffer edge</i>)	Extending from south through east and north approximately 80 m from premises boundary (primarily banksia communities).
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Note 1: The conservation reserve is referred to as a conservation category wetland in Figure 4 below.

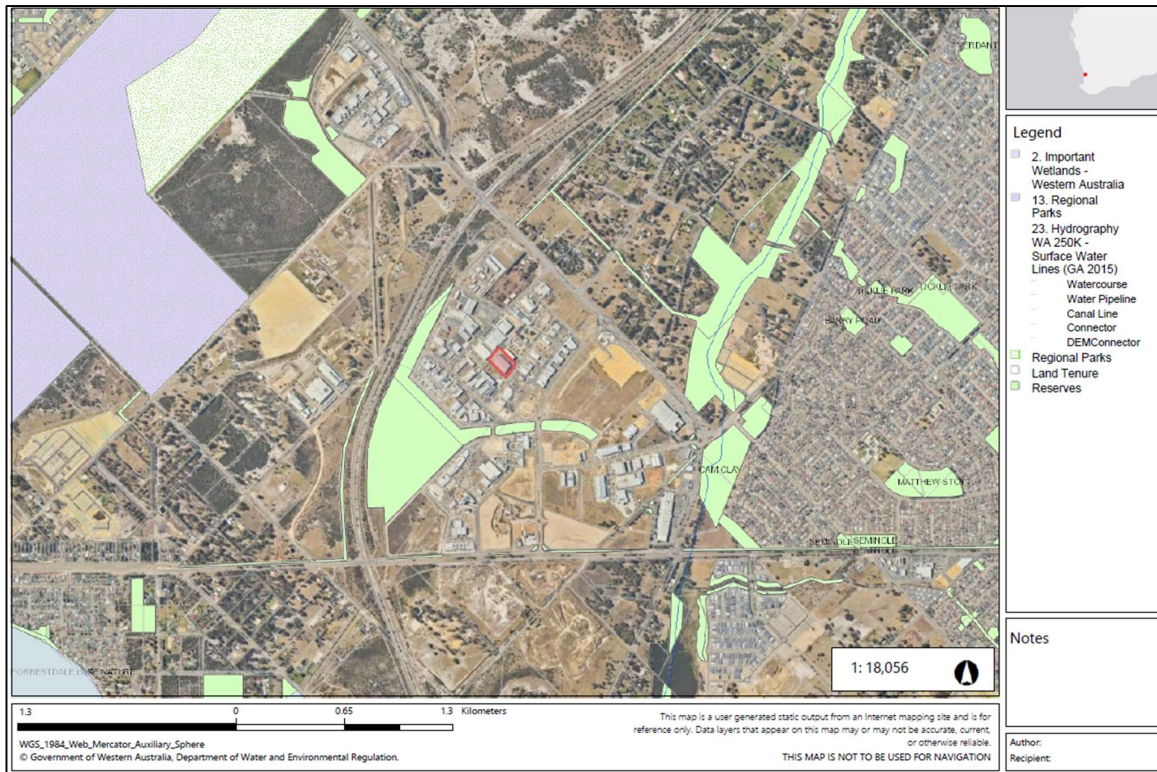


Figure 3: Distance to sensitive environmental receptors

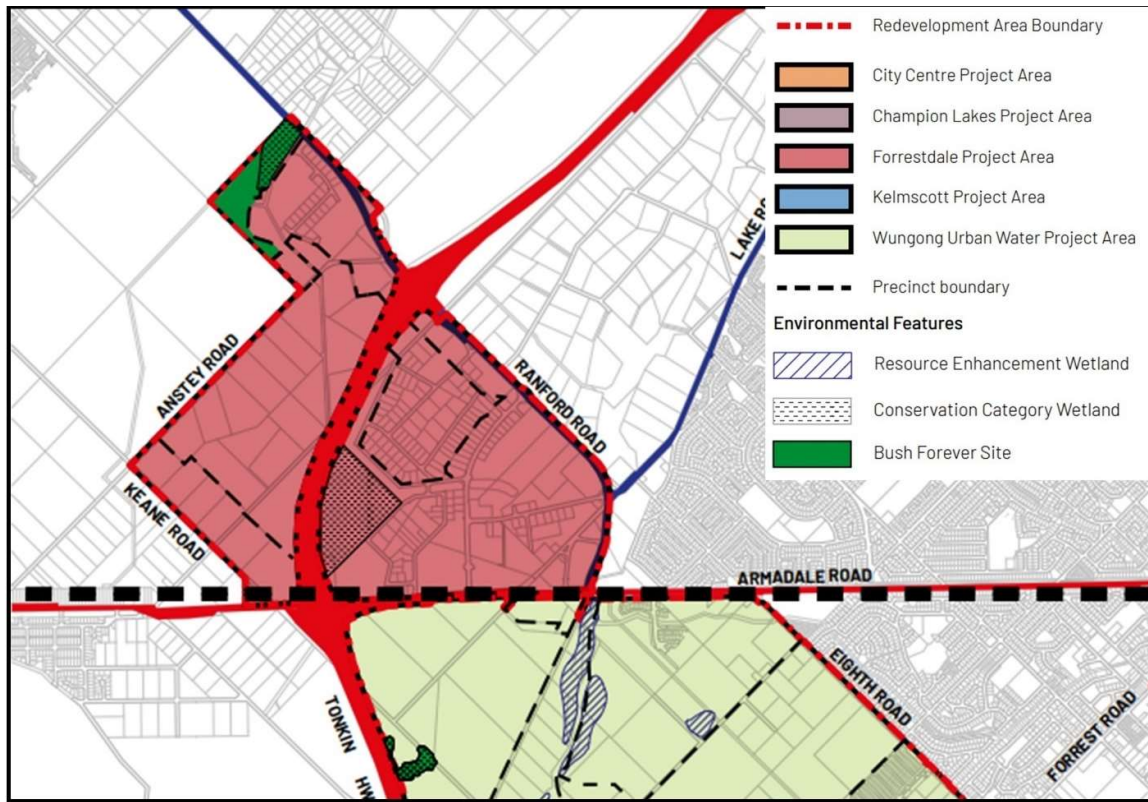


Figure 4: Surrounding land use zones (adapted from DevelopmentWA 2020, *Armadale redevelopment scheme 2*).

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

Works approval W6580/2021/1 that accompanies this decision report authorises construction and commissioning only. The conditions in the issued works approval, as outlined in Table 5, have been determined in accordance with *Guidance statement: Setting conditions* (DER 2015).

The applicant may apply to amend the works approval to authorise additional commissioning and time-limited operations once construction and initial commissioning activities have been completed. A licence will be required following the activities authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e., ULAB recycling. A risk assessment for the operational phase has been included in this decision report, however additional conditions for ongoing operations will not be finalised until the department assesses an application to authorise operations at the premises.

Table 5: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Construction and installation of the ULAB recycling facility BHS plant	Noise	Air/ground transmission causing impacts to health and amenity	Public health and amenity receptors as described in Table 4	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Emission will be regulated under the <i>Environmental Protection (Noise) Regulations 1997</i>	N/A
	Stormwater (potentially contaminated by hydrocarbon spills)	Overland runoff via the stormwater management system	Local surface waters and drainage lines	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	Emission will be regulated under the general provisions of the EP Act	N/A
Construction of the warehouse sump	Asbestos fibres	Air/windborne pathway causing impacts to health and amenity	Public health and amenity receptors as described in Table 4	Refer to Section 3.1	C = Major L = Possible High Risk	N	Condition 1	<p>DoH considers that an appropriate management plan should be prepared to address the potential risk associated with excavation of ACM at the site. In response to DoH comments, the Applicant has advised that an Occupational Health and Safety Job Plan will be developed for excavation activities associated for the construction of the warehouse sump.</p> <p>As this plan has not been finalised prior to the submission of the works approval application, the Delegated Officer has assessed risk on the basis of a plan being in place, but with no certainty on whether the contents of the plan will manage potential impacts.</p> <p>As such, the Delegated Officer has imposed conditions within the works approval to ensure that the risk of emissions of asbestos fibres during excavation works is minimised. Conditions have been selected to ensure the management of any excavated asbestos and/or ACM is in accordance with the DoH (2021) <i>Guidelines for the assessment, remediation and management of asbestos contaminated sites</i>.</p> <p>The Applicant is advised that they may be obliged to submit an appropriate Asbestos Management Plan to DoH in line with the premises Contaminated Sites requirements. The Applicant may also have obligations under other legislation, including the <i>Occupational Health and Safety Act 1984</i></p>
Commissioning								
Commissioning of the BHS plant	Noise/vibration	Air/ground transmission causing impacts to health and amenity	Public health and amenity receptors as described in Table 4	Refer to Section 3.1	C = Moderate L = Possible High Risk	N	Condition 1	<p>The Applicants submitted Environmental Noise assessment undertaken to support the works approval application does not consider any impacts arising from vibration due to battery breaking activities.</p> <p>As such, the Delegated Officer has incorporated conditions into construction requirements of the works approval requiring that the BHS plant be constructed in a manner that will minimise vibration from the operation of the plant.</p> <p>Both noise and vibration emission will also be subject to the provisions of the <i>Environmental Protection (Noise) Regulations 1997</i>.</p>
	Spills of environmentally hazardous materials	Overland runoff via the stormwater management system	Environmental receptors as described in Table 4.	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1 and 8	N/A Controls established within the construction stage are considered sufficient to control the risk. Condition 1 gives effect to the controls committed to by the applicant.
	Stormwater (potentially contaminated with hydrocarbons, lead and other contaminants)		Underlying land and groundwater.	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1	N/A Controls established within the construction stage are considered sufficient to control the risk. Condition 1 gives effect to the controls committed to by the applicant.

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
	Sulfuric acid mist H ₂ SO ₄	Air/windborne pathway causing impacts to health and amenity	Public health and amenity receptors as described in Table 4	Refer to Section 3.1	C = Moderate L = Possible High Risk	N	Conditions 1 and 10 <u>Conditions 4, 6, 7, 8, 11 and 12</u>	<p>The Delegated Officer notes that treatment specifications of the BHS and wet scrubber, monitoring specifications and the Health and Hygiene Management Plan (HHMP) for the premises have not been submitted and/or finalised prior to the submission of the works approval.</p> <p>Controls for the mitigation of both sulfuric acid mist and lead emissions contain uncertainties surrounding their effectiveness due to a lack of supporting information provided. Controls explicit to the commissioning period for the premises were also not provided with the application and have been adapted from controls provided for the operation of the premises.</p> <p>The overall risk of sulfuric acid mist and lead emissions during operation of the BHS plant is directly related to the effectiveness of the Applicant controls put into place during construction. However, the Delegated Officer is unable to assess the suitability of these controls as final design specifications have not been provided.</p> <p>Similarly, the Delegated Officer has not been able to assess the suitability of monitoring specifications or operational controls to mitigate emissions of transportation of particulates as these were not finalised prior to submission to the Department for assessment.</p> <p>As such, the Delegated Officer has imposed conditions on the works approval to ensure adequate construction, installation and commissioning of the system in order to require that it functions as intended.</p>
	Lead	<p>Air/windborne pathway causing impacts to health and amenity</p> <p>Overland runoff via the stormwater management system</p> <p>Contact of lead with machinery or PPE of employees</p>	Public health and amenity receptors as described in Table 4	Refer to Section 3.1	C = Moderate L = Possible High Risk	N	Conditions 1 and 10 <u>Conditions 4, 5, 6, 7, 8, 9, 11 and 12</u>	<p>Conditions have been included requiring the submission of the completed HHMP prior to commissioning activities commencing at the premises to provide an understanding into proposed controls. The suitability of operational procedures within the HHMP will be reviewed as a part of the Licence assessment from the premises.</p> <p>The Delegated Officer has specified monitoring conditions for the commissioning period of the works approval for sulfuric acid mists and lead in line with the intention of the Applicant's proposal. This will be in accordance with the <i>Workplace Exposure Standards for Airborne Contaminants</i> (Safe Work Australia, 2019). The results of this monitoring will be required to be submitted as a part of the Environmental Commissioning report after the first 28 days, and on the conclusion of commissioning activities. The Delegated Officer will consult with DoH on the results of the monitoring to determine the risk to human health, with DoH comments acting to inform the risk assessment for ongoing site operations which will be undertaken during the sites Licence assessment.</p> <p>The Delegated Officer has also implemented conditions based on recommendations from DoH to wipe down bulka bags containing processed product prior to bags leaving the premises, to remove any particulate lead.</p> <p>To determine effectiveness of the construction of the BHS plant, the Delegated Officer shall apply commissioning conditions on the Works Approval that enables processing of a limited volume of ULAB in conjunction with performing negative pressure testing and air quality monitoring. This will provide assurance that the plant is operating effectively and permit necessary monitoring of emissions to be undertaken and analysed.</p> <p>The Delegated Officer notes that they may review the appropriateness and adequacy of controls at any time. Should the review of monitoring data and required plans suggest that controls will not be sufficient for ongoing operation, a higher degree of regulatory control may be implemented on the premises through the sites Licence assessment.</p>

Risk events					Risk rating ¹	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood			
Disposal of grey water and laundry water potentially contaminated with lead to the Water Corporation sewer network	Wastewater	Discharge to the environment/ offsite disposal	Environmental receptors as described in Table 4. Underlying land and groundwater.	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1 and 8 <u>Condition 4</u>	<p>The Delegated Officer notes the comments from Water Corporation (WC) as set out in section 4 of this Decision Report, regarding considerations for the management of process waste waters and trade waste requirements.</p> <p>The treatment of wastewater will be required to meet WC's acceptance criteria, as per the requirements of the Trade Waste Permit for the premises. As such, application of regulatory controls is not within the scope of the EP Act.</p> <p>The Delegated Officer has conditioned the submission of the HHMP within the works approval, which will provide an overview of procedural controls to minimise lead and sulfuric acid exposure to staff. This will in turn minimise the likelihood of the transmission of lead to PPE and subsequently to the WC sewer network.</p> <p>The suitability of operational procedures within the HHMP will be reviewed as a part of the Licence assessment from the premises. DoH comments on the finalised HHMP will act to inform the Delegated Officer's decision surrounding final controls to be incorporated onto the Licence.</p>
Fire event at the premises	Fire and fire washwaters	Air/windborne pathway causing impacts to health and amenity Overland runoff via the stormwater management system	Public health and amenity receptors as described in Table 4 Environmental receptors as described in Table 4. Underlying land and groundwater.	Refer to Section 3.1	C = Major L = Rare Medium Risk	N	Condition 1 <u>Conditions 5, 6 and 7</u>	<p>The Delegated Officer acknowledges that the bunded secondary containment area and sump will have some capacity to capture fire washwaters within the Premises.</p> <p>The Applicant has advised that a Fire Response Procedure (FRP) will be developed for the premises to outline procedures for the containment of fire washwater on site in the event of a fire. However, as this procedure has not been finalised prior to the submission of the works approval application, the Delegated Officer is unable to assess the suitability of any controls proposed by the Applicant that may be included in the procedure in the future.</p> <p>As such, the Delegated Officer has included conditions within the works approval requiring the development of the FRP, inclusions for the procedure and requirements for the procedure to be submitted to the Department within the construction phase of the works approval. The submission of this procedure is required to provide the Delegated Officer with assurance that proposed controls will be adequate to contain emissions resulting from a fire during ongoing operations and the commissioning period.</p> <p>Please note that the FRP will be referred to the Department of Fire and Emergency Services (DFES) for comment. The suitability of controls within the finalised FRP will be assessed during the assessment of the Licence application.</p>

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guideline: Risk Assessments (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website 6 September 2021	N/A	N/A

<p>City of Armadale (CoA) advised of proposal 8 September 2021</p>	<p>Development at the premises is current subject to assessment and approval by Development WA in accordance with the provisions of the Armadale Redevelopment Scheme No.2 and the Forrestdale Project Area Design Guidelines.</p> <p>Following 'normalisation' (expected in late 2021) the land will be reincorporated into the CoAs Town Planning Scheme No.4 and the Metropolitan Region Scheme and will be subject to any relevant local planning polices and zoned as 'General Industry'.</p> <p>The proposed activities would be classified as 'Industry General' which is a permitted use in the General Industry Zone and therefore exempt from the need for planning approval.</p> <p>The workshop was approved and constructed at the site in 2018 and already has all fire services installed.</p> <p>Therefore, the CoA has no objection to the proposal provided the Applicant complies with both the <i>Environmental Protection (Unauthorised Discharge) Regulations 2004</i> and the <i>Environmental Protection (Noise) Regulation 1997</i>.</p> <p>The CoA also provides the following advice:</p> <ul style="list-style-type: none"> • The proposed Battery Recycling Facility does not fall within the 'excessive hazard' occupancy category and therefore no additional fire mitigation measures would be required for the proposed use; • All construction has to comply with the National Construction Code; • Drainage from the site flows into the central basin in Forrestdale Business Park East and then (when water levels rise) out (under Tonkin Highway) to Bailys branch drain and onward to Forrestdale Main Drain. No dam controls were considered or installed beyond 	<p>Noted.</p> <p>Constructed and operational controls surrounding potential emissions of potentially contaminated stormwater have been considered in DWER's risk assessment for the premises.</p>
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Consultation method	Comments received	Department response
	<p>the outlet level of the central basin; and</p> <ul style="list-style-type: none"> • There is also a requirement to retain stormwater volumes up to the 1 in 10 year storm event on-site with outflows above this going to the roadside swale systems prior to flow into the central basin. 	
<p>Development WA advised of proposal 8 September 2021</p>	<p>The Metropolitan Redevelopment Authority (MRA) has no objections to the proposal and notes the following:</p> <p>Under the planning framework, by meeting a General Industry classification, there are no timeframe limitations on the approval to operate (from a MRA or CoA perspective);</p> <p>The MRA development approval process considers fire only regarding bush fire prone areas/ zones, not fire mitigation capacities within the specific sites/ buildings. The City of Armadale building requirements set the fire mitigation capacities within the specific sites; and</p> <p>The MRA development approval process does not consider fire waste waters. No secondary containment or shut-off valves are known to have been established</p>	<p>Noted.</p> <p>Constructed and operational controls surrounding potential emissions from a fire or fire washwaters have been considered in the Department's risk assessment for the premises.</p>

Consultation method	Comments received	Department response
<p>Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal 8 September 2021</p>	<p>The quantities of proposed storage of dangerous goods exceed the manifest quantities outlined in Schedule 1 of the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 and therefore the dangerous goods site storage licence must be obtained prior to the commencement of operations.</p> <p>The proposed storage and processing arrangements for the dangerous goods must be aligned with the requirements of the <i>Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007</i>. The relevant Australian Standards should be consulted in particular for required distances to on-site protected places, segregation requirements for incompatible dangerous goods, spill containment, ventilation, fire protection and training of operators.</p> <p>The processing of dangerous goods will be subject to an assessment of risk, with the appropriate identification of potential hazards and mitigation measures employed.</p> <p>ULABs must also be packed according to the ADG Code, packing instruction P801.</p>	<p>DWER have advised the Applicant that a Dangerous Good Licence will be required prior to waste receipt as part of commissioning commencing at the premises.</p> <p>The Delegated Officer has included conditions within the works approval for construction and commissioning activities only.</p> <p>The Applicant is advised to submit evidence of their granted Dangerous Goods Licence as a supporting document with their Licence application.</p> <p>It is the responsibility of the Applicant to ensure relevant approvals required by other regulatory agencies are in place prior to operations commencing, in line with the <i>Industry Regulation – Guide to Licensing</i>.</p>

Consultation method	Comments received	Department response
<p>Department of Health (DoH) advised of proposal</p> <p>12 October 2021</p> <p>Note: due to a technical failure in the referral mechanism, the referral of 8 September 2021 was not received by DoH.</p>	<p>The site was subject to investigations and remediating works in 2018 which identified asbestos in soils. The site is classified as <i>Remediated for Restricted Use</i> under the <i>Contaminated Sites Act 2003</i> restricting use to industrial premises and prohibiting excavations below the existing slab and pavement without an asbestos site management plan (ASMP) and OHS requirements. The proponent should obtain a copy of the ASMP and adhere to all requirements. Any disturbance of the existing concrete slab and pavement during the installation of new plant or services may result in additional risk assessment and remediation works.</p> <p>DoH also recommends that any emissions as a consequence of the buildings ventilation/air exchange be managed to prevent the escape of lead dust into the ambient environment. DoH notes that fugitive dust on workers and vehicles will be managed by regular cleaning and personnel decontamination procedures. In addition, all product bags should be 'wiped down' with a damp cloth or vacuumed prior to transport to remove any residual lead dust that may have accumulated on the exterior surface of the bulk bags. This will further prevent any inadvertent lead exposure to the product delivery workers, customers and ambient environment. DoH also notes that fire control measures are in place and recommends that the onsite storm drainage system be fitted with a shut down valve to control contaminated fire water entering the street storm drain system.</p>	<p>In response to DoH comments, DWER advised the Applicant that an asbestos management plan should be prepared prior to any excavation works at the premises. In response, the Applicant advised that an Occupational Health and Safety Job Plan would be developed, however this was not finalised during the assessment of the works approval.</p> <p>The Delegated Officer has imposed conditions within the works approval to that are based on the recommendations from DoH</p> <p>The Applicant has been advised that the requirements for the submission of an appropriate Asbestos Management Plan to DoH in line with the premises Contaminated Sites requirements is not negated by the setting of conditions within the works approval.</p> <p>It is the responsibility of the Applicant to ensure relevant approvals required by other regulatory agencies are in place prior to operations commencing, in line with the <i>Industry Regulation – Guide to Licensing</i>.</p>

Consultation method	Comments received	Department response
<p>Water Corporation advised of proposal 8 September 2021</p>	<p>The practice described in the supporting documentation for the treatment of sewage is acceptable. A Trade Waste Application would only be applicable if any of the sewage processing activities were commercial in nature.</p> <p>Regarding the proposed methodology for the disposal of process wastewater, it is strongly recommended that the applicant submit a Trade Waste Permit application prior to construction and commissioning. With additional treatment and monitoring equipment, the activity can be suitably granted a trade waste permit should a discharge to sewer is required. It is in the applicant's best interest to submit a trade waste application prior to construction to avoid installing required equipment retrospectively.</p> <p>Referring to the applicant's claim that "The facility has been designed so that it does not generate and wastewater stream needing disposal", we would need more evidence on how the continuous recycling of filter press permeate could be sustained without any wastewater disposal, especially given that there will be a continuous input of liquid from the ULAB.</p> <p>No issues have been raised regarding discharge of laundry waste to sewer, via the HEPA filter system.</p>	<p>DWER have advised the Applicant that a Trade Waste Permit will be required prior to commissioning operations commencing at the premises.</p> <p>The Delegated Officer has included conditions within the works approval for construction and commissioning activities only. The commissioning period only permits the processing of a small quantity of ULABs to ensure the BHS plant is running effectively and that emission and discharge controls are adequate.</p> <p>The Applicant is advised to submit evidence of their granted Trade Waste Permit as a supporting document with their Licence application.</p> <p>It is the responsibility of the Applicant to ensure relevant approvals required by other regulatory agencies are in place prior to operations commencing, in line with the <i>Industry Regulation – Guide to Licensing</i>.</p>
<p>Adjacent landowners/occupiers (where contact details identified)</p> <p>Seven (7) in total, advised of proposal 8 September 2021</p>	<p>No detail has been provided as to what would happen with emissions of acidic fumes and mists generated in the battery breaker should the wet scrubber fail, and whether this could result in the release of caustic waste which may cause damage to buildings, vehicles or employees of the surrounding premises.</p>	<p>The emission of sulfuric acid mists and lead, along with potential pathways for the emission and the risks to human health, has been considered through the Departments risk assessment.</p> <p>The Works Approval includes controls to ensure equipment and machinery is operated effectively during commissioning.</p>

Works Approval: W6580/2021/1

Consultation method	Comments received	Department response
Ten (10) in total, advised of proposal 14 October 2021	A thorough assessment is required of the risk of short-circuiting batteries when being transported, stored and processed.	The acceptance, storage and processing of ULABs has been considered through the Department's risk assessment for proposed site operations. ULABs are classified as a Dangerous Good under the ADG code. As such, the storage of ULABs at the premises is also subject to regulation by DMIRS through the Dangerous Goods Licence.
Two responses received	A thorough assessment is required of the risk of fire and explosion.	Emissions of fire and fire washwaters have been considered through the Department's risk assessment for proposed site operations. The Works Approval includes controls to mitigate potential emissions arising from any fire at the premises.
	The potential for exposure to fugitive lead and sulfuric acid emissions is concerning despite the applicant's proposed controls.	The Applicants controls to mitigate potential emissions of sulfuric acid and lead have been examined through the Departments risk assessment. These controls will be assessed through the works approval commissioning period to confirm their suitability to mitigate risk to human health during ongoing premises operations. Should the controls be found not to be adequate to ensure emission concentrations meet relevant Workplace Airborne Contaminant standards, the Delegated Officer can impose a higher degree of regulatory control on the premises to ensure these standards will be achieved through ongoing operations.
	The proposed transportation and storage of dangerous goods on the site is concerning.	The transportation and storage of Dangerous Goods is regulated by DMIRS under the Dangerous Goods Licence for the premises. Whilst DMIRS advice informs the Departments decision making process, regulatory responsibility is deferred to the correct agency.
	Potential for fugitive emissions must be fully and properly assessed before any approval is issued to enable a correct decision to be made and for proper conditions to be imposed to address risks.	Emissions and discharges resulting from the construction and commissioning (being preliminary operations) of the premises have been considered in the Departments risk assessment. The suitability of current conditions imposed at the premises will be reviewed on completion of the commissioning period. The inclusion of these conditions, or a higher degree of regulatory control, on the sites subsequent Licence to authorise ongoing activities will be examined through an additional risk assessment at the time of the Licence application submission.

Consultation method	Comments received	Department response
	The risk of contaminated land from spills needs to be thoroughly addressed.	Spills of environmentally hazardous material have been considered as a potential emission through the Departments risk assessment, with Applicant controls found suitable to mitigate the risk to the environment.
	Workers may be exposed to some serious risks including health and hygiene hazardous for poisonous substances, emissions and dust in case of an incident or leak.	Impacts to human health as a result of the BHS plant operation have been considered through the Departments risk assessment. The submission of a Health and Hygiene Management Plan to outline mitigate measures to reduce employee exposure has been conditioned within the works approval.
	Environmental consequences may result from the operation including air/water/soil pollution.	Potential emissions and resulting consequences to air and water have been considered through the Department's risk assessment, with Applicant controls found suitable to mitigate the risk to the environment. Impacts to soil have not been considered in the Departments risk assessment as there is no emission pathway to soil at the premises.
	Surrounding premises may be exposed to additional risk of fire.	Emissions of fire and fire washwaters have been considered through the Department's risk assessment for proposed site operations.
	Surrounding premises may experience increased insurance cost due to unidentified risks.	The Department assesses the risk posed by emissions and discharges from the premises to the environmental in accordance with the EP Act. Increased insurance cost does not fall within the scope of the EP Act or the Departments regulatory framework and as such, cannot be taken into consideration during assessments.
Applicant provided with draft documents 4 January 2022	As summarised in Appendix 1 below.	

5. Conclusion

Based on the assessment in this decision report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Given the established uncertainty surrounding effectiveness of controls and monitoring specifications, the Delegated Officer considers that a smaller throughput is necessary during commissioning so that an understanding of generated emissions can be obtained prior to the plant operating at full capacity. Additional testing will also be required and will be conditioned on the works approval to provide greater assurance in monitoring results.

The submission of the finalised HHMP will be a requirement of the works approval prior to the commencement of the commissioning period. The Delegated Officer considers this necessary to ensure controls within the finalised HHMP will be sufficient to mitigate fugitive emissions and reduce potential health hazards.

Please note that the finalised HHMP submitted as a requirement of the works approval will also be referred to DoH for comment to inform the Delegated Officers decision as to whether operational controls will be sufficient.

The Delegated Officer also notes that the Occupational Health and Safety Job Plan has not been finalised prior to the submission of the works approval application and hence the suitability of controls to mitigate emissions of potential asbestos fibres during construction cannot be assessed.

As such and in line with DoH advice, the Delegated Officer considers there a need to implement additional regulatory control within the works approval for the management of construction works which may result in asbestos fibre emissions.

The Delegated Officer may implement additional regulatory control to the premises operation through the Licence application process should this been deemed necessary at the time, in line with the *Industry Regulation – Guide to Licensing*.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Department of Water and Environmental Regulation (DWER) 2019, *Guideline: Industry Regulation Guide to Licensing*, Perth, Western Australia.
5. Department of Health (DoH) 2021, *Guidelines for the assessment, remediation and management of asbestos contaminated sites in Western Australia*, Perth, Western Australia
6. Safe Work Australia 2019, *Workplace Exposure Standards for Airborne Contaminants*
7. Australian Battery Recycling Initiative, *Used Lead Acid Battery Recycling – Packaging Guidelines for Used Lead Acid Batteries*

Appendix 1: Summary of applicant’s comments on risk assessment and draft conditions

Condition	Summary of applicant’s comment	Department’s response
Works approval		
<p>N/A Page 1</p>	<p>Time limited operations (180 days) were sought in the Works Approval Application that was lodged on 16 July 2021 to allow for the period of time between completion of commissioning, provision of the commissioning report, the licence application and granting of the licence.</p> <p>The works approval granted to FTR operations Pty Ltd was recently amended allowing up to 180 days of time limited operations.</p> <p>The draft works approval does not provide for time limited operations.</p> <p>Please include conditions for time limited operations in the works approval.</p>	<p>Please refer to the above risk assessment for emissions of lead and sulfuric acid mist for the proposed commissioning period.</p> <p>Due to the established uncertainties surrounding the effectiveness of proposed emission controls, the Delegated Officer has granted an extended commissioning period of 120 days which enables the processing of a limited volume of ULAB to attempt to remove some of these uncertainties on how emissions controls will perform. An interim Environmental Commissioning Report will be required to be submitted after the initial 28 days of commissioning, after which time a licence application may be submitted. A final Environmental Commissioning Report will still be required to be submitted at the completion of the 120 day commissioning period.</p> <p>The Delegated Officer considers that results from the initial stages of the commissioning period will be required to be provided to the Department, analysed and referred to relevant stakeholders to confirm the competency of emission controls prior to the premises being permitted to operate and prior to the Department making any further regulatory decisions regarding premises operation.</p> <p>As such, the Delegated Officer will not provide for time limited operations on the works approval at this time. The Applicant is advised to apply for a licence along with the initial Environmental Commissioning Report to facilitate premises operation upon completion of the 120 day commissioning period.</p> <p>It should also be noted that the Department undertakes risk assessment for proposed operations on a case-by-case basis. The outcomes for this assessment should not be compared to the</p>

Condition	Summary of applicant's comment	Department's response
Works approval		
		outcomes for other premises.
N/A Page 1	<p>Page 1 of the draft works approval notes the assessed production capacity as being 15,000 tonnes per annual period. The draft decisions report (p. 3) notes that the maximum design capacity as being 34,320 tonnes per annum.</p> <p>Please change the assessed capacity to 34,320 tonnes per annum to be consistent with the Decision Report.</p>	The assessed capacity on the works approval has been updated to reflect the maximum design capacity of the BHS plant.
Condition 1 Table 1, Row 1	<p>Condition: Environmentally hazardous materials must be stored within independently bunded areas.</p> <p>Clarification on this condition is requested as it requires each environmentally hazardous material whether solid, liquid or gas to be within its own bund whereas, the Application described one bund for the entire plant area.</p> <p>Under the provisions of the <i>Dangerous Goods Safety Regulations 2007</i>, the site will be classified as a Dangerous Goods Site and as such be required to hold a Dangerous Goods Site Licence. That licence amongst other things, will regulate and manage the storage of dangerous goods and the Conditions may be inconsistent with the Dangerous Goods Site Licence requirements.</p> <p>Please modify the condition to liquid materials and remove the requirement for independent bunds where materials are compatible.</p> <p>Alternatively, require the storage of liquid materials to be consistent with the <i>Dangerous Goods Safety Regulations 2007</i>.</p>	<p>Condition wording has been amended as requested to require the storage of environmentally hazardous liquids in accordance with the <i>Dangerous Goods Safety Regulations 2007</i>.</p> <p>The Delegated Officer notes that a Dangerous Goods Site Licence is yet to be applied for or granted. A copy of this licence will likely be requested by the Department as confirmation relevant approval is in place for subsequent Part V approval applications.</p> <p>The Department will give regard to the requirement for approvals issued by other regulatory agencies for a sites operation, in line with the <i>Industry Regulation – Guide to Licensing</i>.</p>
Condition 1	Secondary containment sump — All excavated material must be removed from site within 24 hours to a facility	The Delegated Officer notes the applicants concerns and considers an extension of time to 48 hrs will be adequate to

Condition	Summary of applicant's comment	Department's response
Works approval		
Table 1, Row 3	<p>authorised to disposed or asbestos or ACM.</p> <p>Enecell will attempt to but, it may not be possible to consign excavated material to a landfill within 24 hours of it being excavated due to third party transport and landfill availability/approval requirements. Provided that excavated material is appropriately stored, allowance for a longer period of time is requested (7 days).</p>	<p>arrange the transportation of asbestos contaminated material offsite for disposal.</p> <p>An extension of time to 7 days is not considered appropriate as a storage location for asbestos contaminated material was not provided the applicant and as such, has not been assessed by the Department under the risk assessment for emissions of asbestos fibres.</p> <p>It is also noted (as per the above risk assessment) that the Occupational Health and Safety Job Plan for the management of asbestos fibres proposed by the applicant has not been developed prior to the completion of the works approval submission, resulting in uncertainty as to whether the applicants' controls will be effective. In this regard, 7 days is also not considered an appropriate storage duration.</p> <p>A longer period of 7 days may be considered as part of a future licence application which includes the submission of the above finalised plan.</p>
Condition 1 Table 1 Row 5	The discharge pipe of the secondary containment sump pump will be built to transfer wastewater to the primary hydro separation unit, rather than to other parts or the process.	Construction requirement 'Must be capable of receiving liquid pumped out of the sump located in the middle of the secondary containment area' has been incorporated into this condition, noting this information was not provided in the application's supporting documentation.
Condition 1 Table, Rows 6, 7 and 8	<p>Infrastructure items listed in Table 1, rows 6, 7 and 8 — Must be capable of receiving liquid pumped out of the sump located in the middle of the secondary containment area.</p> <p>The discharge pipe of the secondary containment sump pump will be built to transfer wastewater to the primary hydro separation unit rather than to the noted locations.</p> <p>Please modify these conditions by removing the</p>	Construction requirement 'Must be capable of receiving liquid pumped out of the sump located in the middle of the secondary containment area' has been removed from these conditions as requested, noting this information is contradictory to what was provided in the application's supporting documentation.

Condition	Summary of applicant's comment	Department's response
Works approval		
	abovementioned requirement.	
Condition 1 Table 1, Row 7	BHS plant: Water recirculation tank: Must have a storage capacity of 13 kL. The Application notes that there will be two water recirculation tanks and that each tank has a capacity of 10 kL rather than 13 kL.	Reference to two Water Recirculation Tanks of 10 kL capacity each has been incorporated into the works approval as requested.
Condition 1 Table 1, Row 8	Acid neutralisation tanks: Must have a storage capacity of 16.5 kL. The Application notes that there will be two acid neutralisation tanks and that each tank has a capacity of 8 kL (16 kL in total) rather than 16.5 kL.	Reference to two Acid Neutralisation Tanks of 8 kL capacity each has been incorporated into the works approval as requested.
Condition 1 Table 1, Row 11	The storm water drainage system external to the building was constructed with the building during 2019/2020. As such stormwater drainage has been constructed and it therefore follows that conditions enabling its construction are not needed. Please remove Row 11 of Table 1.	Stormwater infrastructure construction requirements will be removed from the works approval as requested. Operational stormwater controls are likely to be incorporated into Licence conditions for the sites subsequent operational licence.
Condition 3 (a)	Condition 3 requires that the Environmental Compliance Report is certified by a Qualified, Competent Civil or Structural Engineer. It would be sufficient and consistent with the provisions of <i>Environmental Protection Act 1986</i> to specify the class of person required to certify the report as an Engineer, rather than as described in Condition 3.	Certification by a Qualified, Competent Civil or Structural Engineer is a common requirement across Licences and Works Approvals issued by the Department. It is noted that the definition for a Qualified, Competent Civil or Structural Engineer is the same as what would be required for an Engineer. As such the current terminology will be retained in the works approval.
Condition 7 (c)	The Applicant notes that: <ul style="list-style-type: none"> The grounds upon which the CEO may (or may not) authorise the commencement of commissioning are 	The Delegated Officer notes that the wording of this condition results in uncertainty and as such has removed this condition as requested, noting that commissioning cannot commence until the Environmental Compliance Report, HHMP, and FRP have been

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	<p>not detailed.</p> <ul style="list-style-type: none"> The timeline within which the CEO may (or may not) authorise the commencement of commissioning is not detailed. There are no appeal provisions afforded to this condition in the event that the CEO does not authorise the commencement of commissioning. This condition appears to be a second order approval which may not be appropriate. <p>Please modify or remove this condition as appropriate.</p>	submitted to the CEO.
Condition 11 Table 5	<p>The flow rate at hot spot areas will be calculated by calibration of the constant flow rate sample pump against a certified flow meter, its duration of operation and also as required by the NIOSH 7105 method.</p> <p>There will be a local pressure (vacuum) gauge near to the induced draft fan with a local display and local alarm annunciation as well as monitoring in the control room, for the purpose of in-built pressure monitoring.</p>	<p>Confirmation as to how flow rate would be calculated and how negative pressure would be monitored was required to confirm the suitability of condition wording within monitoring requirements of the works approval.</p> <p>Current wording as been retained in light of the information provided.</p>
Conditions 13, 14, 15 and 16	<p>Conditions 13 through to 15 require the assessment and reporting of noise and vibration with respect to the <i>Environmental Protection (Noise) Regulations 1997</i>. If in the event that non-compliance is detected then via Condition 16, a plan to bring about compliance is required</p> <p>The Applicant notes:</p> <ul style="list-style-type: none"> The Application at Appendix 12 provided an assessment of the predicted noise emissions from the proposed ULAB facility. In summary, the assessment demonstrated compliance with the Regulations. The assessment was completed on a conservative basis 	<p>Noise monitoring conditions were incorporated into the works approval to provide DWER with assurance that the operation of the BHS plant will comply with the <i>Environmental Protection (Noise) Regulations 1997</i> (EP Noise Regulations) once the BHS plant is operational.</p> <p>Noting the small amount of ULAB that will be processed through the plant during the commissioning period, the Delegated Officer has revised their decision to incorporate additional noise monitoring requirements on the works approval.</p> <p>Please note that these conditions may be carried onto the sites Licence during the licence assessment should any complaints be</p>

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	<p>and predicted emissions were well below the assigned noise levels. Noise at the nearest residential dwelling was predicted to be 19 dB LA10 at night-time (44 dBA – the assigned level) and 54 dB LA10 at neighbouring industrial premises (65 dBA – the assigned level).</p> <ul style="list-style-type: none"> • The proposed ULAB facility is located in the Forrestdale Business Park away from residential areas. • The works approval granted to FTR Operations Pty Ltd (FTR) (W6304/2019/1) as amended on 18 October 2021 does not contain conditions to demonstrate that operational noise complies with the Regulations. The DWER 2020 Decision Report for Works Approval W6304 (DWER 2020b) notes on page 20, "<i>There is the potential that the night-time assigned level may be marginally exceeded (~1 dB) for a limited number of residential premises to the west, prior to 7 am.</i>" It appears that noise emissions at FTR have a greater impact on the local Cockburn community than that which is likely to occur from the Applicant's proposed ULAB facility on the Forrestdale local community. • Vibration is not identified in Commission for Environmental Cooperation's 2016 technical guidelines for the Environmentally Sound Management of Spent Lead-Acid Batteries in North America, as a matter that requires engineering controls. • Plant and equipment are contained in a building with a concrete floor. Equipment that may cause vibrations will be mounted on bases that reduce vibration. No equipment has been identified that is powerful 	<p>received regard noise and/or vibration during commissioning.</p> <p>It should also be noted that the Department undertakes risk assessment for proposed operations on a case-by-case basis. The outcomes for this assessment should not be compared to the outcomes for other premises.</p>

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	<p>enough to cause vibrations beyond the immediate plant area where it is located.</p> <ul style="list-style-type: none"> • The Regulations bind the Applicant to comply with noise limits that are specified and as such there is no additional regulatory measures needed to support the Regulations. • These noise validation conditions appear to have been drawn from a licence (because Condition 13 mentions 'primary activities' and 'licence holder') rather than from a works approval. Further the conditions do not acknowledge that a noise assessment has been completed (Application – Appendix 12) which demonstrated compliance with the Regulations. If the conditions are to remain then, Coterra recommends that they are focused on a boundary noise survey while the plant is operating. <p>Based on the above, the Applicant requests that conditions 13 to 16 are removed from the works approval. However, if the conditions are to remain, modify the conditions to require a boundary noise survey during commissioning to show compliance with the Regulations.</p>	
Conditions 2 (a), 5 (g) (iii), 5 (g) (h), 18 (b)	Typographical errors identified.	Typographical errors amended where relevant.
Decision Report		
N/A Page 3	The discharge screw conveyor from the battery breaker to the primary vibrating screen is enclosed.	Noted – updated in the Decision Report text.
N/A Page 6	The flow rate will be calculated by calibration of the constant flow rate sample pump against a certified flow meter, its duration of operation and also as required by	Noted – incorporated into the Decision Report text. .

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	the NIOSH 7105 method.	
N/A Page 13	Commissioning process controls are the same as for normal operation.	Noted – updated in the Decision Report text.

Appendix 2: Application validation summary

APPLICATION SUMMARY		
Application type		
Works approval	<input checked="" type="checkbox"/>	
Date application received	16 July 2021	
Applicant and Premises details		
Applicant name/s (full legal name/s)	The Owens Group (WA) Pty Ltd (644 001 196) trading as Enecell Resource Recovery Solutions (Enecell)	
Premises name	N/A	
Premises location	10 McCook Street Lot 319 on Deposited Plan 63655 Forrestdale WA 6112	
Local Government Authority	City of Armadale [Note: Metropolitan Redevelopment Authority (DevelopmentWA)]	
Application documents		
HPCM file reference number:	DER2021/000408	
Key application documents (additional to application form):	Coterra Environment <i>Works Approval Supporting Information Enecell Resource Recovery Solutions 10 McCook Street Forrestdale Revision 0</i> , dated 16 July 2021	
Scope of application/assessment		
Summary of proposed activities.	1) Construction of Used Lead Acid Battery (ULAB) recycling facility, in the form of a Battery breaking and hydro separation plant to process ULAB using processes that: <ul style="list-style-type: none"> • store and handle used lead acid batteries • fragment batteries to separate recyclable lead, lead containing substances and plastic • neutralise spent electrolyte with lime and filter off calcium sulfate 2) Commissioning and time limited operation of the ULAB following construction.	
Category number/s (activities that cause the premises to become prescribed premises)		
Table 1: Prescribed premises categories		
Prescribed premises category and description	Proposed production or design capacity	
Category 47: Scrap metal recovery premises (other than premises within category 45) on which metal scrap is fragmented or melted, including premises on which lead acid batteries are reprocessed	Proposed design capacity: 43,000 tonnes/ year Proposed production capacity: 14,560 tonnes/ year	
<i>Note: Scoping meeting supporting information identifies full scope of proposal to include Category 44 and 45 (smelting and refining of lead) activities that are not within the scope of this application</i>		
Legislative context and other approvals		
Has the applicant referred, or do they	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A

intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?		
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	General lease <input checked="" type="checkbox"/> Expiry: 30 April 2028 – subject to occupier being granted a works approval.
Has the applicant obtained all relevant planning approvals?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Approval: DevelopmentWA is responsible for planning related approvals in the Forrestdale Business Park East, Area 7A Expiry timeframe TBC
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: Perth groundwater area Type: Proclaimed groundwater area
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any other Acts or subsidiary regulations?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<i>The Dangerous Goods Safety Act 2004, Planning and Development Act 2005</i> subsidiary legislation under the <i>Environmental Protection Act 1986</i> , including the <i>Environmental Protection (Controlled Waste) Regulations 2004</i> .
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Classification: Remediated for restricted use (RRU) Date of classification: 21/09/2010