



Application for Works Approval

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

Works Approval Number	W6460/2020/1
Applicant	Covalent Lithium Pty Ltd
ACN	623 090 139
File Number	DER2020/000521
Premises	Earl Grey Lithium Project - Concentrator Southern Cross, WA Mining tenements: G77/129, G77/130, G77/131, G77/133, G77/134, G77/136, L77/205, L77/207, L77/208, L77/295, L77/296, L77/298, L77/313, L77/322, L77/323, M77/1065, M77/1066 and M77/1080 As defined by the Premises map in Schedule 1 and the coordinates in Schedule 2 of the issued Works Approval
Date of Report	12 February 2021
Decision	Works approval granted

**/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

An officer delegated by the CEO under section 20 of the EP Act

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1. Decision summary

This Decision Report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Works Approval W6460/2020/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at <https://www.der.wa.gov.au>.

2.2 Application summary and overview of Premises

On 20 October 2020, Covalent Lithium Pty Ltd (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 works relating to the construction of a Concentrator processing plant to process 2 million tonnes per annum (Mtpa) of spodumene ore. The processed ore will be used to produce approximately 50,000 tonnes per annum (tpa) of Lithium Hydroxide (LiOH) at the Covalent Lithium Hydroxide plant at Kwinana.

The Concentrator is located approximately 105km south-southwest of the Southern Cross town-site on mining tenements M77/1066 and G77/129 (the Premises). The area was formally known as the Mt Holland Mine Site and is an historic gold mining operation which operated between 1988 and 2001. There are a number of old open pits within an approximate 10km radius of the site, including the existing Earl Grey pit.

The Premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) defined in Works Approval W6460/2020/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in Works Approval W6460/2020/1.

Construction of the Concentrator is expected to begin in quarter 1 2021 and end in December 2021. The infrastructure to be constructed includes:

- Run of Mine (ROM) Pad
- ROM bin
- Crushing plant circuit
- Classification and Mica removal circuit
- Dense media separation (DMS) circuit
- Grinding and desliming circuit
- Magnetic material removal circuit
- Flotation circuit
- Product handling and storage area
- Reagent storage areas
- Reverse osmosis (RO) plant (0.073 Gigalitres of waste brine will be produced per year)
- Associated workshops and offices; and
- Power station (18MW)

Figure 1 outlines the infrastructure to be constructed and the proposed layout of the Concentrator.

Operation of the Concentrator

The Concentrator will process approximately 2 Mtpa of ore to produce approximately 0.4Mtpa of dry spodumene (5.5 wt% Li₂O) over the life of the mine. The Concentrator will operate 24 hours a day, 365 days a year, apart from periods of shut down for maintenance activities.

The process flow for the Concentrator has been summarised below in Table 1. A flow diagram has also been provided in Figure 2.

Table 1: Concentrator processing stages (Source: Covalent Lithium Pty Ltd, 2020)

Stage	Description
Crushing	A two-stage crushing circuit, including a primary and secondary crusher will deliver crushed ore to a coarse ore stockpile. The coarse ore drawn from the stockpile is screened. The screened oversize is fed to a tertiary crusher to produce a finer plant feed that is sufficiently liberated to maximise lithium recovery via the downstream DMS and flotation unit operations.
Classification and Mica rejection	Tertiary crusher undersize is slurred and pumped to a cyclone. The cyclone underflow feeds a Classifier which classifies at a given size. The dewatering overflow reports to the Stage 1 deslime in the grinding circuit. The Classifier overflow is screened at a given size to reject mica tails, with the balance of material reporting to the flotation feed circuit. The Classifier underflow reports to the DMS preparation screen, cutting at a given size and dewatering to generate a screened oversize as DMS feed
Dense Medium Separation (DMS)	The Classifier underflow is processed using a two stage DMS circuit. The DMS rejects low density minerals (rejected to DMS tails) and recovers high density coarse spodumene concentrate that is in turn conveyed to the coarse DMS product stockpile. The balance of materials from the DMS is combined with the screened Classifier overflow as feed to the flotation preparation circuit for further processing.
Grinding	The mid-sized DMS material reports to the ball mill feed, while the fines from the Classifier reports to the ball mill discharge hopper. This combined ball mill discharge stream is cycloned with its coarser underflow fraction requiring further grinding being recycled to the ball mill feed. The on-size material is pumped forward to the flotation preparation circuit.
Flotation Feed preparation	The ball mill cyclone overflow reports to desliming ahead of magnetic separation. The balance of material is processed using magnetic separation for the rejection of liberated magnetic and paramagnetic particles. The non-magnetic stream reports to another desliming step which dewateres the flotation feed prior to conditioning. A reject stream reports to the Mags and Deslime tails.
Flotation	The flotation circuit will produce a fine spodumene flotation concentrate and a flotation tailings. The flotation system separates lithium rich minerals which have a greater affinity to be lifted and then floated away from the balance of materials in the system. To achieve this the flotation circuit feed is conditioned at a given density before being diluted for processing. The float requires multiple stages (rougher, scavenging, and cleaning) with each step incrementally improving the lithium bearing mineral concentration and reducing the non-lithium minerals. Each cleaner bank generates a higher-grade stream that moves forward, with the lithium depleted tailing that is recycled
Tails	Coarse DMS reject (circa 0.1mdtpa) and the mica reject dry tails (circa 0.1mdtpa) will be stacked and in turn carted to the Waste Rock Landform (WRL) where it will be comingled and significantly diluted with the bulk waste rock. The wet plant tailings (circa 1.2 mtpa) will be thickened and then pumped to the wet Tailings Storage Facility (TSF), and decant water is recovered back to and recycled within the process plant

The final products, fine spodumene concentrate (from flotation circuit) and coarse spodumene

(from DMS plant) will be co-mixed and loaded into trucks to be taken to a refinery in Kwinana. The fine concentrate will be transported via conveyor to a covered storage shed. The coarse spodumene product will be conveyed and stacked adjacent to the fine spodumene storage shed. Both areas will be concrete lined to allow any run-off to be collected into sumps where water will be pumped back to be reused within the process.

Chemicals to be used during the process include sodium hydroxide, soda ash, chelating agent, flocculant, density modifier, collector, frother, diesel, wetting agent and dispersant. These chemicals will be stored within bunded areas in accordance with Australian standards and the Premises Dangerous Goods licence. All spills will be contained and cleaned up immediately using spill kits.

Water supply for processing will be provided by scheme water that will be sourced from an offtake pipeline from the Kalgoorlie- Goldfields water pipeline near Southern Cross. Recycled process liquor is expected to be high in total dissolved solids (TDS) and will be recycled back into the process. As saline water has a negative effect on flotation performance a reverse osmosis (RO) plant will be installed to treat this water.

Power will be supplied by an LNG fuelled power station constructed within the premises boundary. The capacity of the power station is expected to be 18MW which does not trigger Category 52 under the *Environmental Protection Regulations 1997*.

The Concentrator will produce six tailings streams which will be combined to form three waste streams, which will be disposed of at either a Tailings Storage Facility (TSF) proposed to be located to the north of the Concentrator; or mixed with mine waste at the Waste Rock Landform (WRL) proposed to be located to the west of the Concentrator.

The three waste streams expected to be produced by the Concentrator are:

1. Flotation tailings, magnetic separation overflow (magnetics) and deslime overflow (slimes) combined, then pumped to a TSF. The TSF has not been included in the scope of works to be covered by this works approval. A separate works approval application for the TSF will be submitted at a later date.
2. Dewatered Mica from the mica removal circuit, which is mechanically combined with the dewatered DMS rejects using a front-end loader. The combined material will then be transported to the WRL, for co-disposal with the mine waste. Approximately 3.3 Mtpa of DMS reject is expected to be disposed of to the WRL over the life of the mine. This equates to 10% of the material disposed of at the WRL. This waste stream will be assessed by the Department of Mines, Infrastructure Regulation and Safety (DMIRS) and has not been assessed as part of this works approval application.
3. The RO plant will produce wastewater (brine) which will be hypersaline. It is expected that approximately 0.073 Gigalitres of waste brine will be produced per year (200,000L/day). It is proposed that this water will be used for dust suppression on non-ore and non-sensitive areas (overburden dump) or discharged to the old Earl Grey Pit. This waste stream has been assessed as part of this application.

Operation of the Concentrator will not be approved under time limited operation conditions on this works approval as the TSF (required to contain the waste streams outlined in item 1 above) has not been included for assessment as part of this application.

There are plans for the transportation of Delithiated Beta Spodumene (DBS) and saline refinery residues (including Polished Filter Material (PFM) and Mixed Salt Material (MSM)) from the Kwinana lithium refinery to the Premises for disposal within the WRL in the future. Acceptance of refinery tails is subject to a separate approval under Part IV of the EP Act (s38 for the mine – receipt of waste) which the applicant anticipates submitting in Q1 2021. An amendment to any Premises operational licence for the disposal of this waste may also be required.

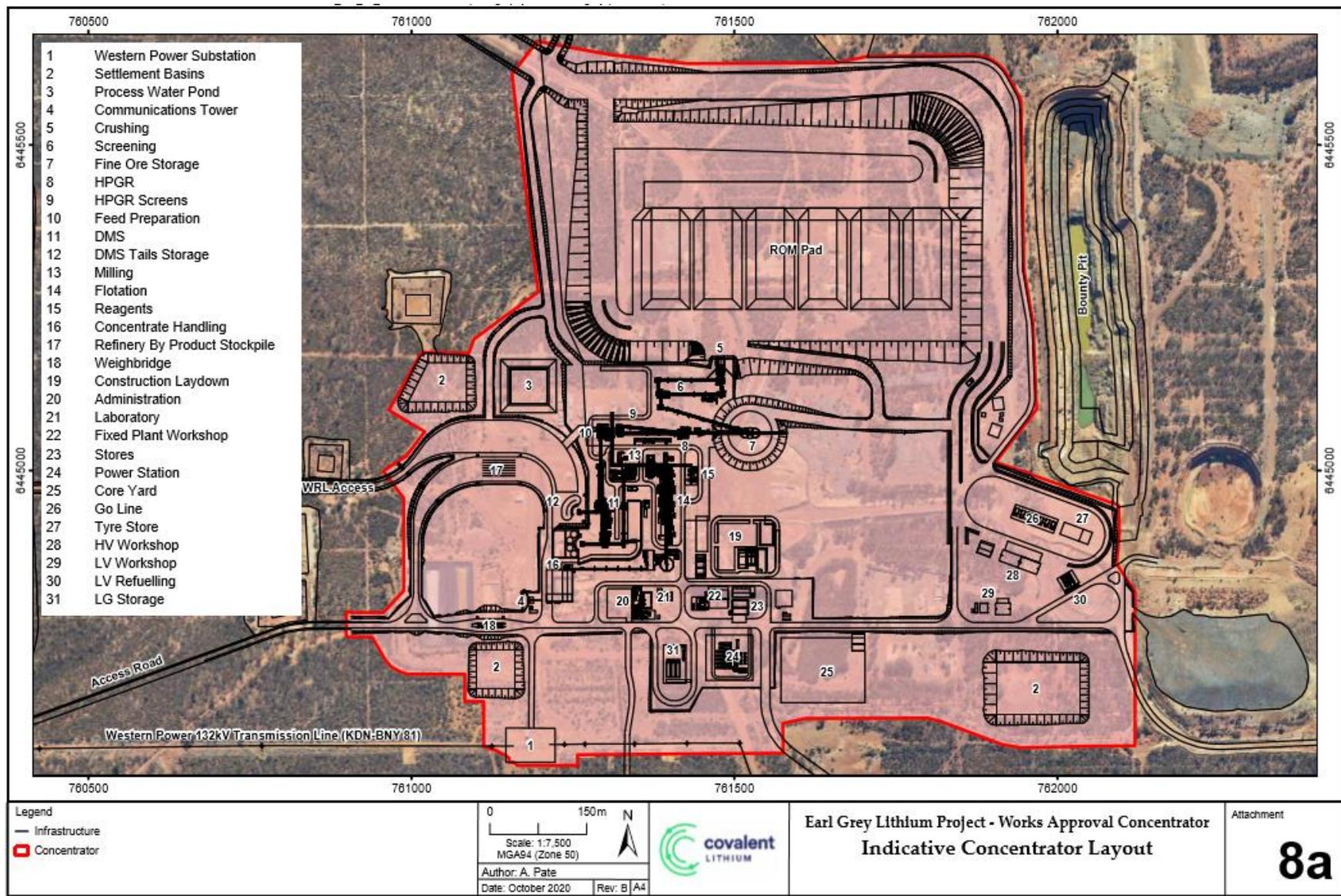


Figure 1: Concentrator layout (Source: Covalent Lithium Pty Ltd, 2020).

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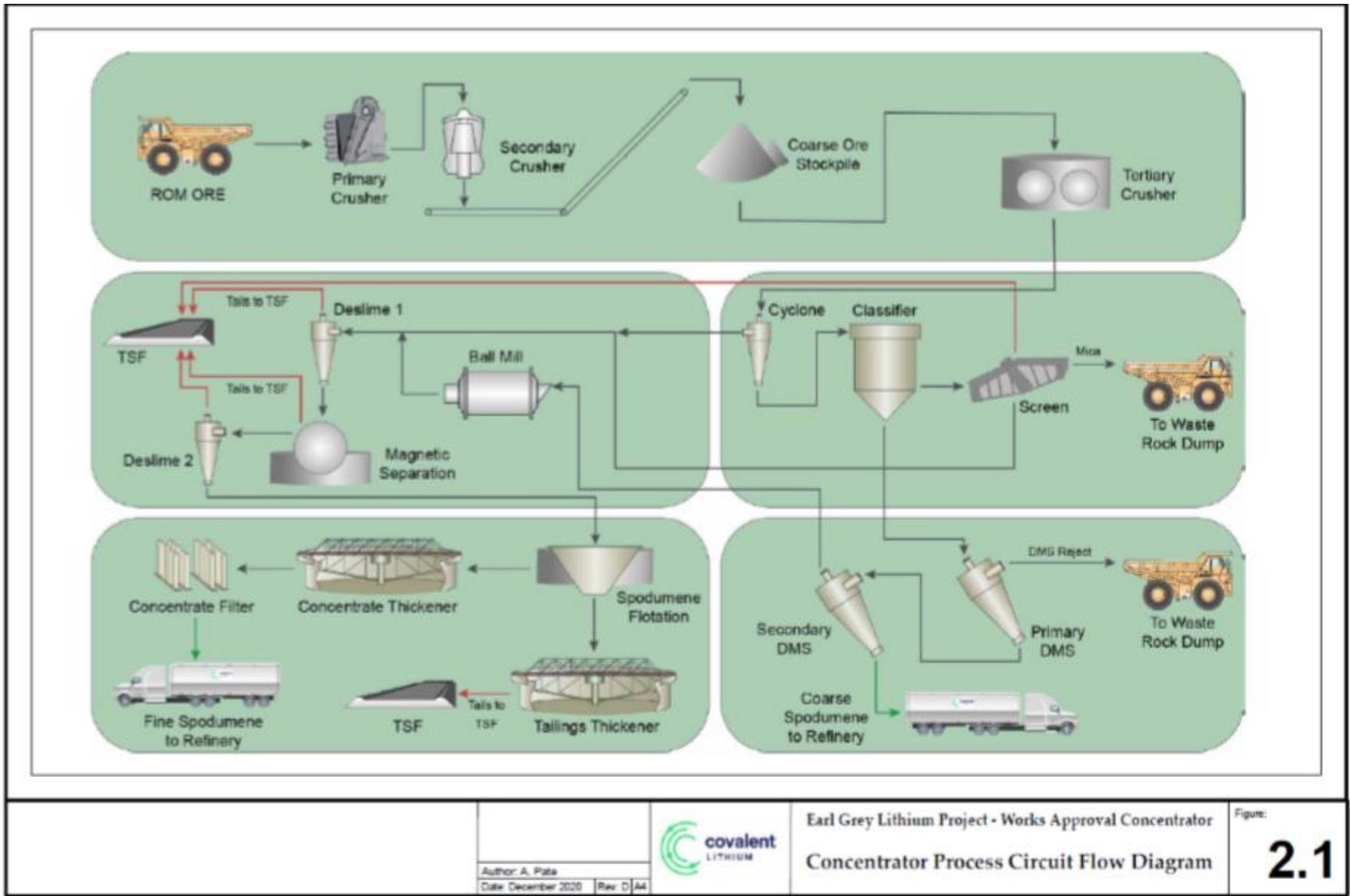


Figure 2: Process flow diagram (Source: Covalent Lithium Pty Ltd, 2020).

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<p>Author: A. Pata Date: December 2020 Rev: 0/44</p>		<p>Earl Grey Lithium Project - Works Approval Concentrator Concentrator Process Circuit Flow Diagram</p>	<p>Figure: 2.1</p>
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2.3 Part IV of the EP Act

The Earl Grey Lithium Project was referred to the Environmental Protection Authority (EPA) by Kidman Resources Limited (the original proponent) in May 2017. Following a change of proponent, Covalent Lithium Pty Ltd is now the current proponent. The proposal is to develop a pegmatite-hosted lithium deposit at the abandoned Mt Holland mine site.

The EPA assessed the proposal at the level of Public Environmental Review with a four-week public review period. In the course of the assessment, the EPA examined potential impacts on the key environmental factors of Flora and Vegetation and Terrestrial Fauna and has concluded that the proposal is environmentally acceptable and can be implemented subject to conditions.

Ministerial statement 1118 was approved for the project and includes conditions which involve the development of environmental management plans and exclusion zones for the protection of conservation significant flora and fauna, and offsets to counterbalance the significant residual impact to flora species *Banksia sphaerocarpa var. dolichostyla*, *Microcorys sp.* Mt Holland (Priority 1) and fauna species chuditch and malleefowl.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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 below. Table also details the proposed control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 2: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Mobilization and placement of infrastructure, including, vegetation clearing, vehicle movements and earthworks.	Air/windborne pathway	<ul style="list-style-type: none"> • Use of water carts as required to wet down dust generating surfaces (roads, earthwork areas and clearing areas); • Topsoil stripping and spreading activities will be restricted during high winds if dust cannot be adequately controlled; • Use of weather forecasting to predict extreme weather conditions likely to result in increased dust emissions so that the Applicant can minimise the impact through application of additional dust controls or

Emission	Sources	Potential pathways	Proposed controls
			modified activities; <ul style="list-style-type: none"> • Use of defined haul routes for mobile equipment travelling on unsealed surfaces or roads; and • Reduced vehicle speed limits in areas of unconsolidated soil.
Noise	Operation of heavy machinery and mobile equipment for the mobilisation and placement of infrastructure.	Air/windborne pathway	<ul style="list-style-type: none"> • Mobile equipment used for the construction of the Concentrator will be operated and serviced in line with the manufacturer's specifications; • Maximum sound power levels are specified for Contractor equipment; • Construction of the Concentrator will take place predominately during daylight hours, thereby limiting noise emissions during the night; and • Complaints relating to noise will be recorded and investigated as per the Covalent Incident Management Procedure.
Hydrocarbon spills/ leaks	Earthwork machinery	Direct discharge to land / overland flow through stormwater Seepage to soil and groundwater	<ul style="list-style-type: none"> • Hydrocarbons will be stored within secondary containment (i.e. bunding) which meets the requirements of Australian Standard (AS) 1940:2017; • Spill kits will be located close by to refueling areas, mobile refueling facilities, workshops and storage areas; • If a hydrocarbon release occurs it will be controlled, contained and removed using spill kit materials or other absorbent material. Contaminated soils will be collected and disposed to an appropriately licensed waste facility; • Hydrocarbon and chemical spills will be reported internally as an environmental incident and larger spills with the potential to cause contamination will be reported externally to DWER; • Mobile equipment used for the construction of the Concentrator will be operated and serviced in line with the manufacturer's specification; and • Servicing and refueling of mobile equipment and vehicles on the Premises will only be undertaken within designated servicing and refueling facilities
Sediment laden	Earth works required for	Direct discharge / overland flow	<ul style="list-style-type: none"> • The Applicant has stated within their application that based on the topography of the Concentrator site, significant surface

Emission	Sources	Potential pathways	Proposed controls
stormwater	construction	via stormwater	<p>water flows likely to cause excessive erosion and sedimentation are not expected to occur, particularly if construction is undertaken in the dry summer months.</p> <ul style="list-style-type: none"> • Temporary bank/bunds will be established upstream (of cleared areas) to divert runoff away from the cleared area. If runoff containing sediments is observed to occur from the cleared area, the Applicant will install sumps to control runoff and minimise the risk of sedimentation.
Operation			
Dust	Operation of Concentrator; including transport and handling of ore, crushing and screening of ore and material transfer points around chutes and conveyor belts.	Air/windborne pathway	<ul style="list-style-type: none"> • ROM bin has an enclosure to all sides except the entry side; • Water sprays will be used at the ROM bin and transfer points in the crushing circuit; • Design applied to all transfer points (speed and trajectory) will seek to minimise dust generation during operation; • Transfer points will also have skirts along their interface zones with conveyors; • Two insertable type dust collector will be installed (primary Crusher and Screen); • Bag house style dust collector servicing the reclaim tunnel feeders to conveyor transfer points; Captured dust is placed back on to the conveyor system; • Water sprays installed at ore transfer to crushed ore stockpile (COS); • Use of water carts as needed to wet down dust generating surfaces such as roads, earthworks areas and clearing areas; • High moisture content in wet tails ensures minimal dust generation from TSF; • Use of weather forecasting to predict extreme weather conditions likely to result in increased dust emissions so additional dust controls or modified activities can be implemented; • Use of defined haul routes and reduced vehicle speed limits for mobile equipment travelling on unsealed surfaces or roads; • Depositional dust gauges will also be located within the flora exclusion zones to monitor potential dust deposition on flora and vegetation; and

Emission	Sources	Potential pathways	Proposed controls
			<ul style="list-style-type: none"> A site-based weather station will also be utilised to monitor and record weather conditions.
Noise	Operation of Concentrator (crushing and screening circuit) and transfer of concentrate and tailings.	Air/windborne pathway	<ul style="list-style-type: none"> Noise attenuation methods will be considered for plant and equipment design for the Concentrator; Mobile equipment will be operated and serviced in line with the manufacturer's specifications; Maximum sound power levels are specified for Contractor equipment; and Complaints relating to noise will be recorded and investigated as per the Covalent Incident Management Procedure.
Hydrocarbon/chemical spills and leaks Contaminated stormwater (contamination from Hydrocarbon or process chemical spills/ leaks and sediment runoff from stockpiles)	Operation of Concentrator, and associated machinery	Direct discharge to land / overland flow through stormwater Seepage to soil and groundwater	<ul style="list-style-type: none"> Areas within the process plant where hydrocarbons or reagents are stored or have the potential for sheet flow to be contaminated (stockpile areas, workshops, refueling areas etc.) will be developed as bunded containment areas. These areas will be directed to grated sumps from where potentially contaminated water will be pumped back to the processing facility. In line with AAS 1940:2017, the bunding will be sized to contain 110% of the capacity of the largest storage vessel within the bund. Spill kits will also be located close by to refueling areas, mobile refueling facilities, workshops and storage areas; If a hydrocarbon / chemical release occurs it will be controlled, contained and removed using spill kit materials or other absorbent material. Contaminated soils will be collected and disposed to an appropriately licensed waste facility; and Hydrocarbon and chemical spills are reported internally as an environmental incident and larger spills with the potential to cause contamination are reported externally to DWER.
Sediment laden stormwater	Water and sediments generated via runoff from the rockfill embankment batter slopes	Direct discharge / overland flow via stormwater	<ul style="list-style-type: none"> Sheet flow from the three catchment zones within the premises boundary will be directed to three unlined sediment ponds via perimeter drainage channels. Runoff will flow into the perimeter drains and then into the sediment ponds where fine particles will be allowed to settle.

Emission	Sources	Potential pathways	Proposed controls
			Water in these ponds will be allowed to evaporate. Periodic cleaning out of the sediment will occur when required.
RO plant brine for dust suppression	Direct discharge to land for dust suppression	Direct discharge to soil, overland runoff impacting vegetation.	Dust suppression brine applied only to the overburden dump and not onto roads therefore there will be no direct impact to vegetation.
Storage of RO plant brine in old Earl Grey Pit	Direct discharge to land	Seepage through soil into groundwater	None proposed. A high-density polyethylene (HDPE) above ground pipeline will carry brine to the pit. The pipeline will be banded and inspected on a regular basis.
Tailings (wet tailings, DMS reject /mica) disposal to TSF and WRL	The disposal of wastes into a WRL or TSF has not been assessed as part of this works approval application. Waste disposal will be assessed as part of future works approval or licence applications. The construction of a TSF has not been included as part of this work approval application and therefore has not been assessed.		

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 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 (*Guidance Statement: Environmental Siting* (DER 2016)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
No human receptors (besides Applicant's mine site accommodation camp ~1500m from processing area) Nearest town is Marvel Loch located 75km north-west of the Premises.	No human receptors within >10km of the premises.
Environmental receptors	Distance from prescribed activity
Threatened Ecological communities - Ironcap Hills banded ironstone formation	The majority of the prescribed premises boundary is located within the Priority 3 ecological community (PEC); Ironcap Hills Vegetation complexes (Mt Holland; Middle, North and South Ironcap Hills; Digger Rock and Hatter Hill). A qualitative statistical review of species and vegetation

	<p>communities observed within the Project area as compared to the Ironcap Hills vegetation complexes was completed by Mattiske Consulting Pty Ltd (Mattiske) in October 2018. The statistical analysis reveals a poor correlation between the identified vegetation communities, dominant vegetation types and representative species associated with Ironcap Hills Vegetation Complexes in addition to the lack of comparative landforms and geology associated with the PEC.</p> <p>Given this analysis, it is considered the Proposal is not expected to result in significant impacts to the Ironcap Hills PEC. Consultation with DBCA confirmed this assessment under the Part IV assessment approved in Ministerial Statement 1118.</p>
Underlying groundwater	<p>There are no registered bores within the site; however, 12 registered bores are located within approximately 4 and 10 km from the southern boundary of the site and two registered bores within approximately 6 and 10 km from the north-eastern boundary of the site (360 Environmental, 2020).</p> <p>Based on previous investigations, depth to the water table ranged from 58 meters below ground level (mbgl) to 70 mbgl. Groundwater is saline to hypersaline with total dissolved solids (TDS) levels varying between 7,640 mg/L and 119,000 mg/L. (360 Environmental, 2020).</p>
Threatened and Priority Flora	<p>Classified threatened (under the <i>WA Biodiversity Conservation Act 2016</i>) and vulnerable (under the EPBC Act) species <i>Banksia sphaerocarpa var. dolichostyla</i> are reported to be present at the site.</p> <p>Exclusion zones exist around threatened or priority flora present within the premise's boundary. This is managed under Ministerial statement 1118 (Flora management plan).</p>
Threatened fauna	<p>A number of conservation significant fauna species have been found recently (last 5 years) at the site. <i>Leipoa ocellate</i> (Malleefowl) and <i>Dasyurus geoffroyi</i> (Chuditch) have been sited within the premises boundary.</p> <p>Malleefowl mounds exist in close proximity to the processing area. Exclusion zones exist around mounds which is managed under Ministerial statement 1118 (Fauna management plan).</p>
Surface water	<p>No major surface water features within 5km of the site.</p> <p>The only notable surface water feature is a constructed ephemeral drainage line that starts at the northwest tip of the airstrip and runs northeast past the processing plant area. Apart from this constructed drainage line, the Project area does not intersect any other identifiable drainage lines or creeks, with runoff generally occurring as sheetwash in a northeasterly direction.</p>

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) 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 4.

Works Approval W6460/2020/1 that accompanies this Decision Report authorises **construction only**. The conditions in the issued Works Approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required to authorise emissions associated with the environmental commissioning and operation of the Premises i.e. operation of the Concentrator and disposal of wastes produced during operation. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until the department assesses the licence application.

A separate works approval is required for the construction of the tailing storage facility as this infrastructure has not been included in this application

Table 4: Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and operation

Risk Event								Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	
Construction								
Mobilization and placement of infrastructure, including, vegetation clearing, vehicle movements and earthworks.	Dust	Air/windborne pathway causing impacts to health and amenity	No Human receptors. Nearest town is Marvel Loch located 75km north-west of the Premises. Vegetation adjacent to the Premises Impacts to priority flora within premises managed under ministerial statement.	Refer to Section 3.1	N/A	N/A	N/A	Minimal dust emissions are expected to be generated from construction activities. Construction activities will occur over a short/medium-term period (12 months). The distance to residential receptors is considered to be too great for dust impacts from construction of the project to occur. The Delegated Officer considers that a pathway for dust / noise emissions does not exist. Any potential dust emissions can be regulated by section 49 of the EP Act.
	Noise	Air/windborne pathway causing impacts to health and amenity	No Human receptors. Nearest town is Marvel Loch located 75km north-west of the Premises.	Refer to Section 3.1	N/A	Yes	N/A	Minimal noise emissions are expected to be generated from construction activities. Construction activities will occur over a short/medium-term period (12 months). The distance to residential receptors is considered to be too great for noise impacts from construction of the project to occur. The Delegated Officer considers that a pathway for noise emissions does not exist. The provisions of the <i>Environmental Protection (Noise) Regulations 1997</i> are also applicable.
	Hydrocarbon spills or leaks	Direct discharge to land Overland runoff during rainfall events potentially causing ecosystem disturbance offsite.	Localized contamination of soils and vegetation. No nearby significant surface water features. Impacts to priority flora onsite managed under ministerial statement.	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Yes	N/A	Minimal hydrocarbon emissions are expected on site during construction activities (spills / leaks from vehicles and machinery). It is unlikely for hydrocarbon emissions to have an impact on offsite native vegetation due to the applicant's proposed controls. Therefore, no additional regulatory controls are required. Spills and leaks of hydrocarbons during construction can be regulated under the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> .
	Sediment laden stormwater	Direct discharge to land Overland runoff during rainfall events potentially causing ecosystem disturbance offsite.	Localized contamination of soils and smothering of native vegetation. No nearby significant surface water features. Impacts to priority flora onsite managed under ministerial statement.	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Yes	N/A	Minimal sediment emissions are expected on site during construction activities (stormwater runoff during rainfall events). It is unlikely for sediment emissions to have an impact on offsite native vegetation due to the applicant's proposed controls. Therefore, no additional regulatory controls are required.
Operation (includes wet commissioning) – time limited operations conditions not included due to TSF being assessed under a separate works approval.								
Operation of Concentrator. Screening, crushing, processing, unloading, loading and storage of material. Vehicle movements.	Dust	Air/windborne pathway causing impacts to health and amenity	No Human receptors. Nearest town is Marvel Loch located 75km north-west of the Premises.	Refer to Section 3.1	N/A	N/A	N/A	Some dust emissions are expected to be generated from operation of the Concentrator and associated infrastructure. The distance to residential receptors is considered to be too great for dust impacts from operation of the project to occur. The Delegated Officer considers that a pathway for dust emissions to human receptors does not exist.
		Air/windborne pathway	Native vegetation adjacent to	Refer to	C = Minor	Yes	Condition 1 –	Low level offsite impacts to vegetation may occur during

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Risk Event								Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	
		potentially causing ecosystem disturbance due to smothering of vegetation.	premises Impacts to priority flora within premise boundary managed under ministerial statement.	Section 3.1	L = Unlikely Medium Risk		infrastructure requirements	operations due to the expected dust emissions generated by the crushing circuit of the Concentrator / loading and unloading of ore and products and vehicle movements. This risk event will probably not occur in most circumstances due to the applicant's proposed controls. The applicant's infrastructure controls (water sprays etc.) will be conditioned within the works approval.
	Noise	Air/windborne pathway causing impacts to health and amenity	No Human receptors. Nearest town is Marvel Loch located 75km north-west of the Premises.	Refer to Section 3.1	N/A	N/A	N/A	Noise emissions are expected to be generated during operation of the Concentrator however the distance to human receptors is considered to be too great for noise impacts to occur. The Delegated Officer considers that a pathway for noise emissions does not exist. The provisions of the <i>Environmental Protection (Noise) Regulations 1997</i> are also applicable.
	Hydrocarbon spills / leaks	Direct discharge to land Overland runoff during rainfall events potentially causing ecosystem disturbance offsite.	Localised contamination of soils. No nearby significant surface water features. Native vegetation (Impacts to priority flora managed under ministerial statement).	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Yes	Condition 1 – infrastructure requirements	Low level onsite impacts and minimal off-site impacts from hydrocarbon emissions may occur during operations. It is unlikely for this risk event to occur due to the applicant's proposed controls. The applicant's infrastructure controls will be conditioned within the works approval. Operational conditions will be determined at licence stage.
	Sediment laden stormwater	Direct discharge to land Overland runoff during rainfall events potentially causing ecosystem disturbance offsite.	No significant nearby surface water features Native vegetation (Impacts to priority flora managed under ministerial statement).	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Yes	Condition 1 – infrastructure requirements	Low level onsite impacts and minimal off-site impacts from sediment emissions may occur during operations. It is unlikely for this risk event to occur due to the applicant's proposed controls. The applicant's infrastructure controls will be conditioned within the works approval. Operational conditions will be determined at licence stage.
	RO plant brine	Direct discharge to land via spraying of water (with elevated salts and metals/ metalloids) for dust suppression.	Localised contamination of soils. No significant nearby surface water features	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Yes	N/A	Low level onsite impacts to soil and minimal off-site impacts may occur from the use of RO brine for dust suppression activities. RO reject brine will be used as dust suppression water on the overburden dump. It will not be used on haul roads and therefore is unlikely to impact vegetation. It is unlikely for this risk event to occur due to the applicant's proposed controls. No additional regulatory controls required on the works approval. Operational conditions will be determined at licence stage.
		Direct discharge to land (storage of brine in RO Pit) via overtopping potentially causing ecosystem disturbance.	Localised contamination of soils and impacts to vegetation No significant nearby surface water features	Refer to Section 3.1	C = Minor L = Rare Low Risk	N/A	N/A	Mid-level onsite impacts to soil and vegetation may occur if the pit were to overtop causing a release of stored water to the environment (high in salts). This risk event may only occur in exceptional circumstances due to the large available storage volume within the old earl grey pit (approximately 1,216,240m ³). No additional regulatory controls required on the works approval. Operational conditions will be determined at

Risk Event								Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	
								licence stage.
		Seepage of brine from Earl Grey Pit into groundwater resulting in impacts to groundwater quality.	Groundwater	Refer to Section 3.1	C = Minor L = Rare Low Risk	Yes	N/A	<p>The old Earl grey Pit will act as saline water storage for the premises. Waste brine from the RO plant will be transported via pipeline to the Earl Grey Pit for storage. It is estimated that on average 18m³/hr of brine will be deposited into the pit. Water from the pit will be used for dust suppression for the overburden dump.</p> <p>Depending on efficiency of the RO plant and level of salt in the process streams the salt content of the waste brine will vary from 9,000 mg/L to 45,000 mg/L. The average expected total dissolved solids (TDS) concentration of the brine from the RO plant is expected to be 15,000 mg/L (mainly as NaCl).</p> <p>Water currently in the Earl Grey Pit is from groundwater and surface water runoff. The groundwater monitoring data for the site indicates that water quality in the Earl Grey Pit ranges from 80,000 to 120,000 mg/L TDS.</p> <p>Low level onsite impacts to groundwater may occur due to the storage of the brine within the pit.</p> <p>However, this risk event may only occur in exceptional circumstances due to the large distance to the underlying groundwater table (Based on previous investigations, depth to the water table ranged from 58 to 70 mbgl) and the low permeability of the Earl Grey pit area (yields of less than 2 l/s based on previous hydrogeological testing results from the host rock lithologies in the Earl Grey pit area (Mining Proposal, 2020).</p> <p>No regulatory controls required on the works approval.</p> <p>Operational conditions will be determined at licencing stage if required.</p>
		Direct discharge to land via pipeline rupture (transport of brine to Earl Grey pit) potentially causing ecosystem disturbance offsite.	Localised soils and vegetation (Impacts to priority flora managed under ministerial statement). No significant nearby surface water features	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Yes	N/A	<p>Low level onsite impacts may occur due to rupture of pipelines transporting RO brine due to the saline nature of the waste (15,000mg/L (mainly as NaCl)).</p> <p>This risk event is unlikely to occur due to the applicant's controls (bundling and inspections of pipelines).</p> <p>No regulatory controls required on the works approval.</p> <p>Operational conditions will be determined at licencing stage if required.</p>
	Disposal of wastes produced by the Concentrator (tailings, DMS reject and Mica).	The disposal of wastes into the waste rock landform or a tailings storage facility has not been assessed as part of this works approval. Waste disposal will be assessed as part of future works approval or licence applications. The construction of a tailings storage facility has not been included as part of this work approval application and therefore has not been assessed.						

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

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

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website 23/11/2020.	None received.	N/A
Local Government Authority advised of proposal 19/11/2020.	Response received on 18/12/2020 advising that the Shire of Yilgarn has no objections to the proposal.	Noted.
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal 19/11/2020.	<p>DMIRS replied on 18/12/2020. The following summarises the comments that were made:</p> <ul style="list-style-type: none"> DMIRS is currently assessing a Mining Proposal (MP) (which includes a Mine Closure Plan (MCP)) from Covalent for the Earl Grey Lithium Project (REG ID 91617). The MP that DMIRS is currently assessing states that "Solid-based waste from the concentrator such as coarse rejects from the Dense Media Separation (DM) circuit will be deposited in the Waste Rock Landform whilst dewatered slurry-based tailings will be deposited within a proposed tailings facility (Phase 2 Mining Proposal, 2021)." The MP does not include; a Tailings Storage Facility (TSF), detailed properties of the processed waste, detail about the management required for processed waste, or detail about where the different process waste streams from the Concentrator will be disposed of. There is no further detail (besides the above sentence) provided about the placement of waste from the Concentrator into the waste rock dump. It is understood that this detail, along with the TSF design, will be provided in a future MP, which is planned to be submitted in Quarter 1, 2021. The current MP will not be assessing and approving the mixing of any processing or refinery waste with waste rock for disposal in the waste rock dump. Should Covalent wish to place processed waste from the Concentrator within a WRD this would need to be proposed within the Activity Details of the MP, and the environmental risk and any associated management of the waste stream detailed would also need to be included in the MP. Covalent would need to demonstrate that the disposal of the processed waste would meet 	Noted.

	<p>all of the DMIRS Environmental Objectives, including that “Mining activities are rehabilitated and closed in a manner to make them physically safe to humans and animals, geo-technically stable, geo-chemically non-polluting/non-contaminating, and capable of sustaining an agreed postmining land use, without unacceptable liability to the State.”.</p> <ul style="list-style-type: none"> • It is noted that the MP includes a 24.74 ha Processing Plant (Concentrator), whereas the area for the Concentrator in the Works Approval is listed as 96.30ha. Based on the figure provided in Appendix 4, Attachment 2 of the Works Approval, the ‘Concentrator’ area in the Works Approval also includes the Run of Mine (ROM) Pad, which is indicated as 25.77 ha in the MP. • From the surface water data provided with the MP, there appears to be limited surface water flows around this project, but it was noted that in extreme weather events, the main surface water drainage line at this project flows directly past the Concentrator area. It is noted that the Works Approval application is required to identify potential emissions, including Stormwater runoff. It is suggested that the stormwater bunding around the Concentrator is appropriately designed to deal with the surface water flows that could be experienced during operations. 	
DBCA, advised of proposal 19/11/2020.	Response received on 24/11/2020. No comments.	Noted.
Applicant was provided with draft documents on 24/12/2020. Comments were received on 25/01/2021 and 11/02/2021	<p>Comments regarding the wording of infrastructure requirements (Condition 1, table 1) of bunded containment areas were provided.</p> <p>New replacement map for figure 4 provided.</p>	Wording has been updated in consultation with applicant.

5. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer has determined that a works approval will be granted to construct the Concentrator and associated infrastructure only, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

A licence is required to authorise emissions associated with the environmental commissioning and operation of the Concentrator. A risk assessment for the operational phase has been included in this Decision Report, however not all aspects of the operation have been assessed (i.e disposal of wastes produced by the Concentrator). Licence conditions will not be finalised until the department assesses the licence application.

A separate works approval is required for the construction of the TSF as this infrastructure has not been risk assessed.

References

1. 360 Environmental Pty Ltd August 2020, Detailed site investigation Mount Holland Mine Site, prepared for Covalent Lithium, Perth, Western Australia.
2. Covalent Lithium Pty Ltd 2020, *Earl Grey Lithium Project, Concentrator works approval supplementary information*, Perth, Western Australia.
3. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
4. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
5. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
6. Earl Grey Lithium Project mining proposal 2020, document id COV-001-EN-PRP-0002, Reg ID 79070, Covalent Lithium Pty Ltd, Perth, Western Australia

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input checked="" type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:		N/A <input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None <input type="checkbox"/>
Date application received	20/10/2020			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Covalent Lithium Pty Ltd			
Premises name	Earl Grey Lithium Project			
Premises location	Mining Tenement M77/1066 and G77/129			
Local Government Authority	Shire of Yilgarn			
Application documents				
HPCM file reference number:	DER2020/00521			
Key application documents (additional to application form):	Application form Supplementary Information document Works approval zip file containing the shape files for the application			
Scope of application/assessment				

<p>Summary of proposed activities or changes to existing operations.</p>	<p>The applicant proposes to develop the Earl Grey Lithium Project (the Project) at the historical Bounty Gold mine site near Mount Holland. The Project will comprise the mining and processing of approximately 2 million tonnes per annum (Mtpa) of spodumene ore for the production of approximately 50,000 tonnes per annum (tpa) of battery quality Lithium Hydroxide (LiOH) at the Covalent Lithium Hydroxide plant at Kwinana, to be sold by Covalent shareholder into the international electric vehicle (EV) battery market.</p> <p>The works approval is for the construction of the Concentrator. A separate WAA for the TSF, which will receive the waste from the Concentrator, will be submitted prior to commissioning of the Concentrator. Therefore, this WAA is solely for the construction of the Concentrator and Covalent will seek an amendment to the WAA prior to commissioning</p>
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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 5 – processing beneficiation of metallic ore	2 Mtpa

Legislative context and other approvals

<p>Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input checked="" type="checkbox"/></p>
<p>Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Ministerial statement No: 1118 EPA Report No: 1651 There is currently a s45C application with Part IV to do with expanding developmental envelop to include a water pipeline. Does not involve the Concentrator.</p>
<p>Has the proposal been referred and/or assessed under the EPBC Act?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Reference No: 2017-7950</p>

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input checked="" type="checkbox"/> Expiry: Other evidence <input checked="" type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why?
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"/>	CPS No: N/A Clearing approved under ministerial statement.
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"/>	Application reference No: N/A Licence/permit No: N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: GWL201377(1) annual water entitlement 5,000kL duration 22/2/2019 to 29/5/2023 Process water supplied by scheme water sourced from Kalgoorlie-Goldfields water pipeline.
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: N/A Type: Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office:
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>

<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i>, <i>Environmental Protection (Controlled Waste) Regulations 2004</i>, <i>State Agreement Act xxxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p><i>Dangerous Goods Safety Act 2004</i></p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Classification: possibly contaminated – investigation required (PC–IR) Date of classification: Oct 2020</p>