



Application for Licence Amendment

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

Licence Number	L8845/2014/1
Licence Holder	IB Operations Pty Ltd
ACN	165 513 557
File Number	DER2014/002065-1~10
Premises	Iron Bridge Magnetite Project Marble Bar, WA 6760 M45/1226, M45/1244, L45/293, L45/294, L45/359, L45/360, L45/361, L45/364 and L45/367, as granted under the <i>Mining Act 1978</i> As defined by the premises maps attached to the Licence
Date of Report	20 July 2022
Decision	Revised licence granted

Abbie Crawford
A/MANAGER, WASTE INDUSTRIES

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

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1. Decision summary

Licence L8845/2014/1 is held by IB Operations Pty Ltd (Licence Holder) for the Iron Bridge Magnetite Project (the Premises), located at Marble Bar, WA 6760 on mining tenements M45/1226, M45/1244, L45/293, L45/294, L45/359, L45/360, L45/361, L45/364 and L45/367 as granted under the *Mining Act 1978*.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8845/2014/1 has been granted.

The Revised Licence issued as a result of this amendment supersedes the existing Licence previously granted in relation to the Premises.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department 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

On 11 October 2021, the Licence Holder submitted an application to the department to amend L8845/2014/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). Amendments are being sought to add category 12, operation of mobile crushing and screening facilities (MCSFs) to crush waste rock to assist with construction requirements; and to increase throughput of the wastewater treatment plant (WWTP) (category 54). No changes to the aspects of the existing Licence relating to Categories 5, 52 and 77 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence.

The Licence Holder advises that the MCSFs are mobile facilities and will be moved regularly to enable crushing and screening for civil construction purposes. Depending on the required purpose, MCSFs will generally be located in areas such as existing laydown areas in close proximity to construction works. Material processed through the MCSFs will be deposited directly into trucks, conveyors or existing stockpiles where possible. New stockpiles may be required where this cannot practically be achieved. The number of MCSFs on site at any given time will vary in response to specific operational construction requirements. The MCSFs may be operated by Fortescue personnel or contractors. The Licence Holder has applied for a license amendment to operate MCSFs anywhere within the premises boundary, but has provided an indicative operating area based on construction needs (Figure 1) and advises that the MCSFs will only be operated in previously cleared areas.

The Applicant proposes to discharge an increased volume of treated wastewater combined with reverse osmosis (RO) reject to the existing 15.1 ha spray irrigation field. The proposed volumes are 585 m³/day wastewater effluent (including 30 m³/day trucked in from satellite sites) plus 140 m³/day of RO reject water. Wastewater will be treated to meet the low exposure risk level defined in the Department of Health's (DoH's) 2011 *Guidelines for the Non-potable Uses of Recycled Water in Western Australia*.

The engineering design of the WWTP was considered prior to DWER issuing works approval W6315/2019/1. The proposed volumes of treated wastewater combined with RO reject are consistent with those assessed as part of that works approval. The WWTP's infrastructure was also recently upgraded to treat 585 m³/day wastewater under W6602/2021/1, and

compliance documentation was submitted to DWER on 22 April 2022.

Table 1 below outlines the proposed changes to the existing Licence.

Table 1: Proposed design or throughput capacity changes

Category	Current production or throughput capacity	Proposed production or throughput capacity	Description of proposed amendment
Category 5: Processing or beneficiation of metallic or non-metallic ore	50,000 tonnes or more per year	50,000 tonnes or more per year	N/A
Category 12: Screening, etc. of material	N/A	Up to 5,000,000 cubic metres per year	The Licence Holder has applied to operate mobile crushing and screening facilities (MCSFs) to crush waste rock to assist with construction requirements.
Category 52: Electric power generation	14 MWe per annual period	14 MWe per annual period	N/A
Category 54: Sewage facility	205 cubic metres per day	520 cubic metres per day	The Licence Holder has applied to increase throughput at the existing WWTP. No changes to infrastructure are required.

2.3 DWER-initiated amendments – works conditions

Licence L8845/2014/1 included works conditions related to the construction of a concrete batching facility. Compliance documentation for the concrete batching works conditions was submitted to DWER 4 September 2020. DWER carried out a desktop review of the documentation, in which the Licence Holder reported compliance with the construction requirements of the licence. As a result of that review, DWER responded to the Licence Holder on 16 September 2020 and the works conditions have been removed from Revised Licence L8845/2014/1.

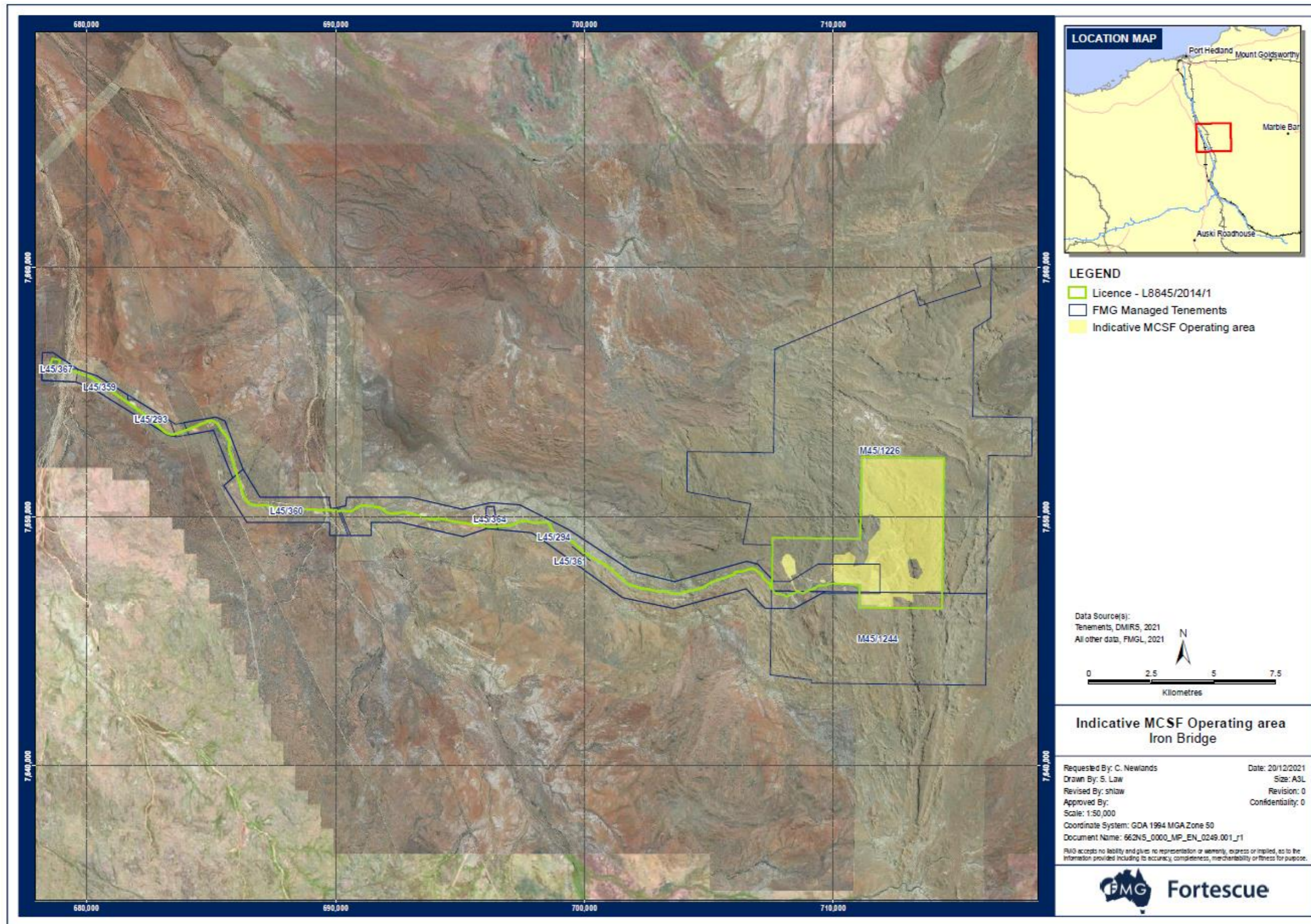


Figure 1: Indicative MCSF Operating area provided by the Applicant

2.4 Part IV of the EP Act

The proposal to operate a mine site (including an accommodation camp) known as the North Star Magnetite Project was assessed under Part IV of the EP Act, as published in EPA Bulletin 1514 on 23 June 2014. Ministerial Statement 993 (MS 993) was issued on 9 January 2015. Four separate changes to the proposal under section 45C of the EP Act have been approved between 2016 and 2020.

The EPA decided that five key environmental factors were relevant to the proposal:

- Flora and Vegetation (including considering clearing to accommodate a waste rock dump, mine infrastructure and linear infrastructure i.e. pipelines and access roads);
- Terrestrial Fauna (including a regionally significant maternal roost cave for the Pilbara Leaf-nosed bat; direct removal and fragmentation of habitat for the Northern Quoll; and modification of the upper catchment of Site 12 Pool which is habitat for the Pilbara Olive Python);
- Subterranean Fauna;
- Hydrological Processes and Inland Environmental Waters Quality (including deteriorating water quality flows into the Site 12 Pool through modification of the upper catchment, which is located within the Mine Development Envelope); and
- Offsets (for native vegetation).

Conditions were placed on MS 993 in relation to the management of flora and vegetation within the Mine Development Envelope.

Conditions were also placed on fauna under MS 993, including a 100 m Mining Exclusion Zone around the predicted extent of Cave 13 (Pilbara Leaf-nosed Bat habitat), and conditions relating to Water Quality and Quantity within the catchment of Site 12 Pool (Pilbara Olive Python habitat).

Impact on subterranean fauna was considered a key environmental factor and was assessed by the EPA as published in EPA Bulletin 1514, but no ministerial conditions considered necessary.

Impacts on human health and air quality (from dust emissions) and Aboriginal heritage were also assessed and found not to be key environmental factors.

The original proposal assessed for MS 993 did not assume crushing and screening activities would occur throughout the premises boundary / development envelope, but rather would occur within a discrete area and in association with the processing of ore. Notwithstanding this, there are no conditions within MS 993 directly preventing the proponent from crushing and/or screening waste rock; the addition of this activity within the development envelope may not be contrary to the original decision. However, the other conditions of MS 993 must be met (such as the 100 m Mining Exclusion Zone around the predicted extent of Cave 13, and protecting water quality and quantity within the catchment of Site 12 Pool).

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 operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	<p>Operation of MCSFs to crush waste rock</p> <p>Fines from the screening process</p> <p>Vehicle movements</p> <p>Stockpiles of waste rock</p>	Air/windborne pathway	<p>Where applicable, ensure that operation of the MCSFs is managed in accordance with:</p> <ul style="list-style-type: none"> - <i>Mine and Rail Dust Management Plan (45-PL-EN-0030)</i> - <i>Construction Environmental Management Plan, Iron Bridge Mine Project (FMG, September 2021) (662NS-0000-PL-EN-0003)</i> - <i>Mobile Crushing and Screening Environmental Management Procedure</i> - <i>Iron Bridge Dust Management Procedure (FMG, 20 July 2021) (662NS-0000-PR-EN-0001)</i> <p>Minimise dust emissions from crushed product stockpiles and feed stockpiles using water sprays and/or water trucks.</p> <p>Fit screens, transfer points and crushing units with dust suppression controls as required.</p> <p>Enforce speed limits in MCSF work areas to reduce dust generation.</p> <p>Operate to atmospheric conditions of the day (halting operations/increasing controls in high winds).</p> <p>Continually monitor visible dust emissions.</p> <p>Conduct regular site inspections of work areas, including to observe any changes in amenity and/or condition of vegetation within and adjacent to work areas.</p> <p>Mobile crushing and screening will occur in already disturbed areas as per MS993 and approved Mining Proposals.</p>
Noise	<p>Machinery operation of MCSFs to crush waste rock</p> <p>Vehicle movements</p>	Air/windborne pathway	<p>Inspection and maintenance of exhaust and silencing systems on machinery/mobile plant, where practicable.</p> <p>Minimise noise with the use of protective</p>

Emission	Sources	Potential pathways	Proposed controls
	(including reversing beepers)		shields around the motors, and rubber lines and protective barriers, as required. Manage noise emissions during operation in accordance with the <i>Environmental Protection (Noise) Regulations 1997</i> .
	Operation of the wastewater treatment plant (WWTP)		Low noise equipment will be used where practicable. Barriers will be installed around pumps if required to minimise noise. Manage noise emissions during operation in accordance with the <i>Environmental Protection (Noise) Regulations 1997</i> .
Contaminated or potentially contaminated stormwater (chemicals, hydrocarbons and wastes)	Spills or leaks of chemicals, hydrocarbons and wastes during MSCF operation, including: Fuel storage and refuelling of plant and vehicles Chemical storage and use (lubricants and greases)	Overland runoff Surface water flow via waterways Seepage through soil to groundwater	Store hydrocarbons, lubricants and greases in bunding, in accordance with AS 1940-2004 (<i>The storage and handling of flammable and combustible liquids</i>) and <i>Chemical and Hydrocarbon Storage Procedure</i> (100-PR-EN-1064). Position spill kits near areas where the potential for hydrocarbon spills has been identified, in accordance with the <i>Chemical and Hydrocarbon Management Plan</i> (100-PL-EN-0011). Use spill trays and other containment mechanisms during maintenance activities to prevent discharge to the environment. If diesel generators are used for power generation, these are to be self-bunded and drip trays are to be used while refuelling. Limit the storage of lubricants at the MSCF work area, with bulk quantities to be stored at workshops or other suitable sites. General waste generated during construction, operation or closure of MSCFs is to be disposed of at a suitably licensed landfill. Chemical and hydrocarbon contaminated materials generated during construction/installation, operation or closure of the MSCF will be disposed of in accordance with the <i>Chemical and Hydrocarbon Storage Procedure</i> (100-PR-EN-1064). Controlled waste will be disposed of in accordance with the <i>Environmental Protection (Controlled Waste) Regulations 2004</i> .

Emission	Sources	Potential pathways	Proposed controls
Sediment laden stormwater	Fines and oversized material from the screening process	Overland runoff Surface water flow via waterways	<p>Position MCSFs away from major watercourses.</p> <p>Use windrows to direct stormwater away from MCSF work areas.</p> <p>Grade the site as required to ensure that stormwater, wash down and spillage water run-off from MCSF work areas is contained and directed to a collection and settling sump, from where it can be appropriately treated prior to reuse or disposal.</p> <p>Install additional drainage management structures around stockpiles, if required, to prevent clean stormwater from mixing with sediment within MCSF work areas.</p> <p>Fines and oversized material from the screening process will be used as construction material or is clean bulk fill.</p> <p>Manage work in accordance with the <i>Surface Water Management Plan</i> (NS-0000-PL-EN-0001). Appendix 1 to this document includes a Site 12 Pool Water Quality and Quantity Monitoring Plan.</p>
Odour	<p>Operation of the wastewater treatment plant</p> <p>Storage or processing of wastes</p> <p>Sludge removal from the sludge tanks</p>	Air/windborne pathway	<p>The WWTP has been designed as a containerised system with enclosed balance tank and treated effluent/irrigation tank.</p> <p>Sludge will be contained within a sealed shipping container, prior to being taken to a licensed facility.</p> <p>The WWTP was installed as per manufacturer's specifications.</p> <p>The daily maintenance schedule will include a check for odours outside the facility. Should any odours be identified, necessary repairs will be performed.</p>
Contaminated or potentially contaminated stormwater (wastewater, treatment chemicals including chlorine and sodium hypochlorite, solid waste/sludge)	Leaks or spills	<p>Overland flow</p> <p>Surface water flow via intermittent waterway</p> <p>Seepage through soil to groundwater</p>	<p>All wastewater storage components of the WWTP will be impermeable (i.e. fibreglass, concrete or lined with HDPE).</p> <p>The WWTP was installed as per manufacturer's specifications.</p> <p>Sufficient freeboard will be maintained within each tank to ensure overspill does not occur.</p> <p>WWTP tanks were installed on impermeable concrete pad.</p> <p>Any incident involving a spill of untreated sewage will be responded to immediately with contaminated soil removed to an</p>

Emission	Sources	Potential pathways	Proposed controls
			<p>appropriately licensed facility.</p> <p>Sludge will be stored in a separate tank and pumped directly from the tank during sludge removal, which will be on an annual basis in accordance with the <i>Environmental Protection (Controlled Waste) Regulations 2004</i>.</p> <p>Pipelines will be regularly inspected for leaks or damage.</p> <p>The WWTP will be inspected and then tested with freshwater for leaks prior to commencing use.</p> <p>The WWTP has been located outside the 1-in-100 year average flood extent.</p> <p>The WWTP will be operated in accordance with the surface water management measures in the <i>Surface Water Management Plan (100-PL-EN-1015)</i>.</p> <p>Operational monitoring will be conducted in accordance with Department of Health guidelines and licence requirements.</p> <p>Water levels and pumps will be monitored by an alarm system.</p> <p>Treatment chemicals (chlorine) will be stored and fully contained in a designated storage area within the WWTP.</p>
Wastewater discharges	<p>Treated effluent from the wastewater treatment plant</p> <p>Reject water from the potable / fire water treatment plant</p>	<p>Direct discharge of effluent by irrigation</p> <p>Spray drift</p> <p>Surface water flow via intermittent waterway</p> <p>Seepage through soil to groundwater</p>	<p>Wastewater will be treated to meet the low exposure risk level defined in DoH's 2011 <i>Guidelines for the Non-potable Uses of Recycled Water in Western Australia</i>.</p> <p>The spray field is fenced with lockable gates and has visible safety signs to advise of treated effluent disposal.</p> <p>The irrigation spray field is positioned outside of the 1-in-100 year average flood extent, on naturally level ground.</p> <p>Earthen windrows 300 mm high are located down slope, acting as a buffer to prevent run-off leaving the fenced perimeter of the spray fields.</p> <p>The irrigation system includes sprinklers to provide even coverage of the irrigation field.</p> <p>Effluent is disposed to the irrigation field by an automated system that is managed by a trained operator.</p> <p>Groundwater is anticipated to be 20 m BGL; the risk to groundwater is low.</p>

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation. However, the Native Title Holders described in Table 3 may visit the area surrounding the Premises on an occasional, short duration basis.

A number of Aboriginal and other heritage sites (5 registered sites and 9 lodged sites) are present within the eastern mining polygon of the Premises boundary. There are also at least 5 additional lodged or registered Aboriginal heritage sites intercepting or running close to the western portion of the Premises (the pipeline route), including Kunaginarrina pool along the Turner River. The *Aboriginal Heritage Act 1972* (AHA) protects all Aboriginal heritage sites in Western Australia, whether they are registered or not. Consent is required from the Minister for Aboriginal Affairs for any activity which will negatively impact Aboriginal heritage sites.

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

Human receptors	Distance from prescribed activity
Wodgina Shared Village mining camp	approximately 5 km north-west of the far west boundary of the Premises.
Atlas Iron mining camp	approximately 12 km north-east of the Premises.
Yandeeeyarra Aboriginal community	Approximately 35 km west south-west of the far west boundary of the Premises.
Marble Bar	Approximately 70 km east of the Premises
Determined Native Title Holders, the Nyamal People #1	The Determined Native Title area includes the eastern portion of the Premises.
Determined Native Title Holders, the Kariyarra People	The Determined Native Title area includes the western portion of the Premises.
Environmental receptors	Distance from prescribed activity
Underlying groundwater – Pilbara Groundwater Area	Underlying groundwater is within the Pilbara Groundwater Area proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act).
Surface water – Turner River Turner River West Intermittent creeks which flow into the Turner River and Shaw River	<p>The Premises intercepts these surface water bodies (Figure 2).</p> <p>The Premises is within the Turner River surface water catchment, which is within the Pilbara Surface Water Area proclaimed under the RIWI Act.</p> <p>The conditions of Ministerial Statement 993 require management and monitoring of surface water to maintain for important habitat at Site 12 Pool for the Pilbara Olive Python (Figure 3).</p>

Aboriginal and other heritage sites	<p>5 registered sites (Figure 4) and 9 lodged sites (Figure 5) are present within the eastern mining polygon of the Premises boundary.</p> <p>At least 5 additional lodged or registered Aboriginal heritage sites are present close to the western portion of the Premises (the pipeline route), including along the Turner River.</p>
Flora	<p>Two Priority Flora species have been reported within the Premises boundary.</p> <p>Three vegetation communities were mapped within the extent of the irrigation area, none of which are of conservation significance.</p>
Fauna	<p>Significant fauna species (Pilbara Leaf-nosed Bat, Northern Quoll and Pilbara Olive Python) are found within the Premises boundary.</p> <p>The conditions of Ministerial Statement 993 referred to an exclusion area for Pilbara Leaf-nosed bat habitat, and to management required for important foraging and denning habitat for the Northern Quoll (Figure 7) and habitat for the Pilbara Olive Python.</p>

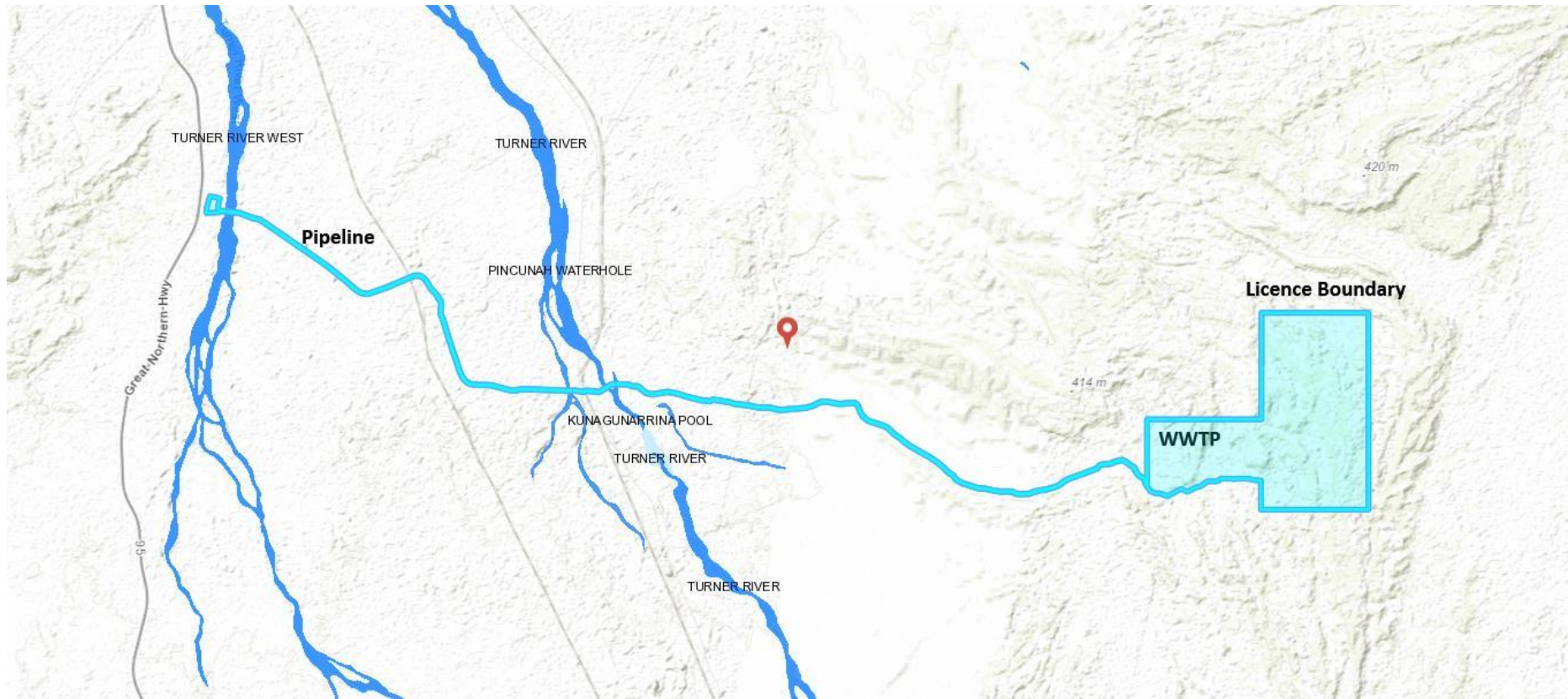


Figure 2: Major waterways (dark blue) intercepted by the licence boundary (light blue)

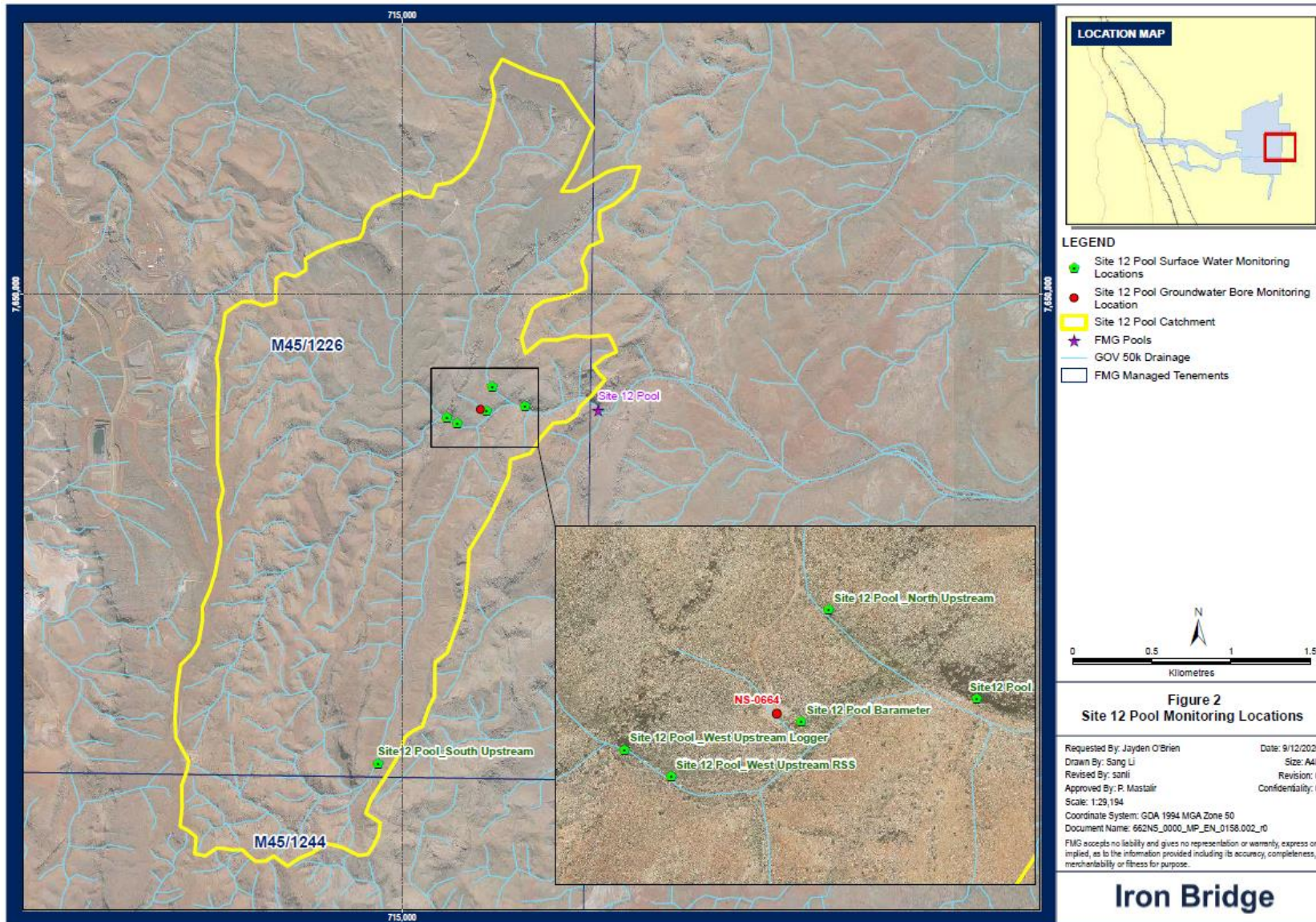


Figure 3: Site 12 pool and catchment

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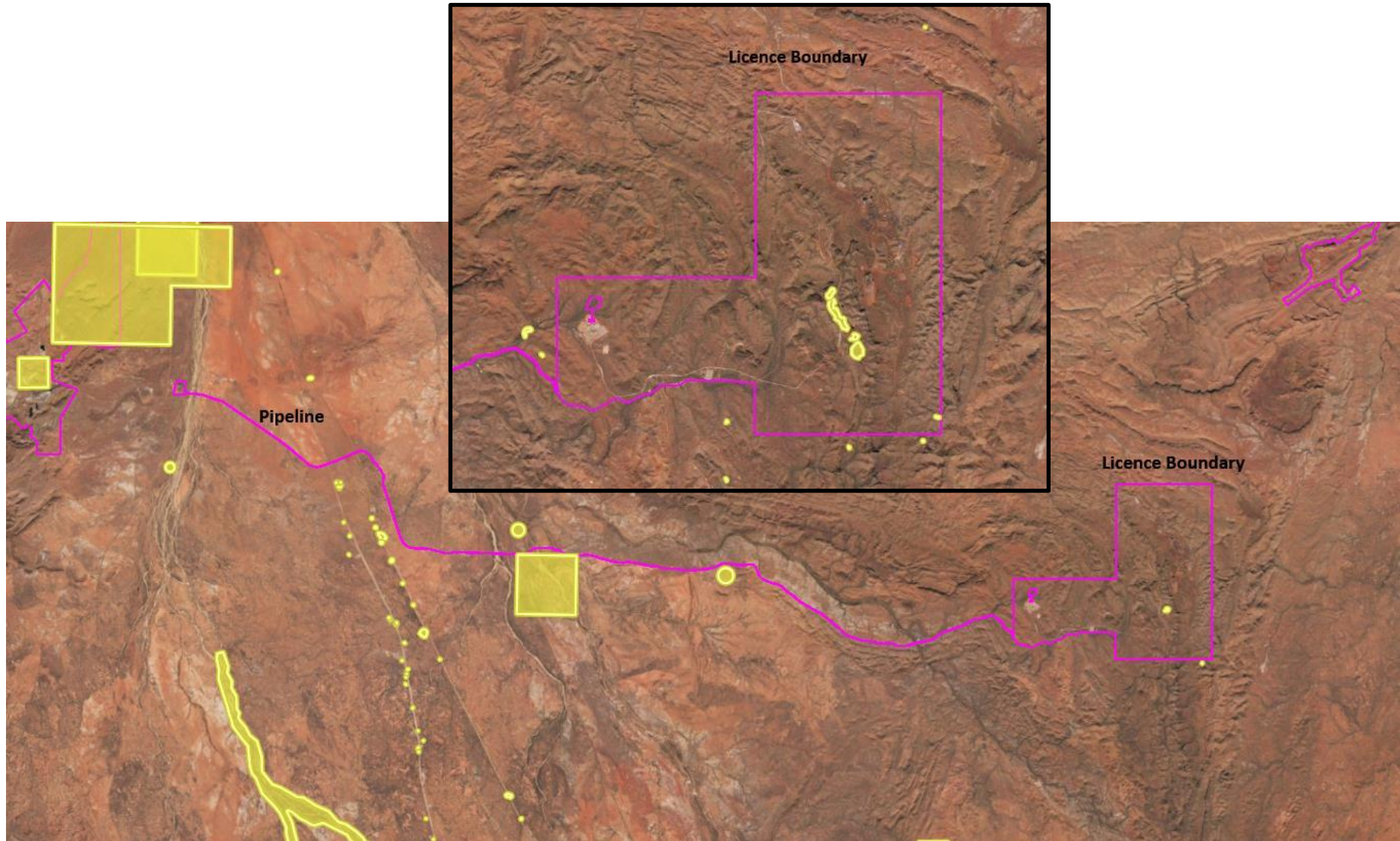


Figure 4: Registered Aboriginal heritage sites (yellow) intercepted by or close to the premises boundary (pink), including a close up of the eastern mining polygon.



Figure 5: Lodged Aboriginal heritage sites (yellow) intercepted by or close to the premises boundary (pink)

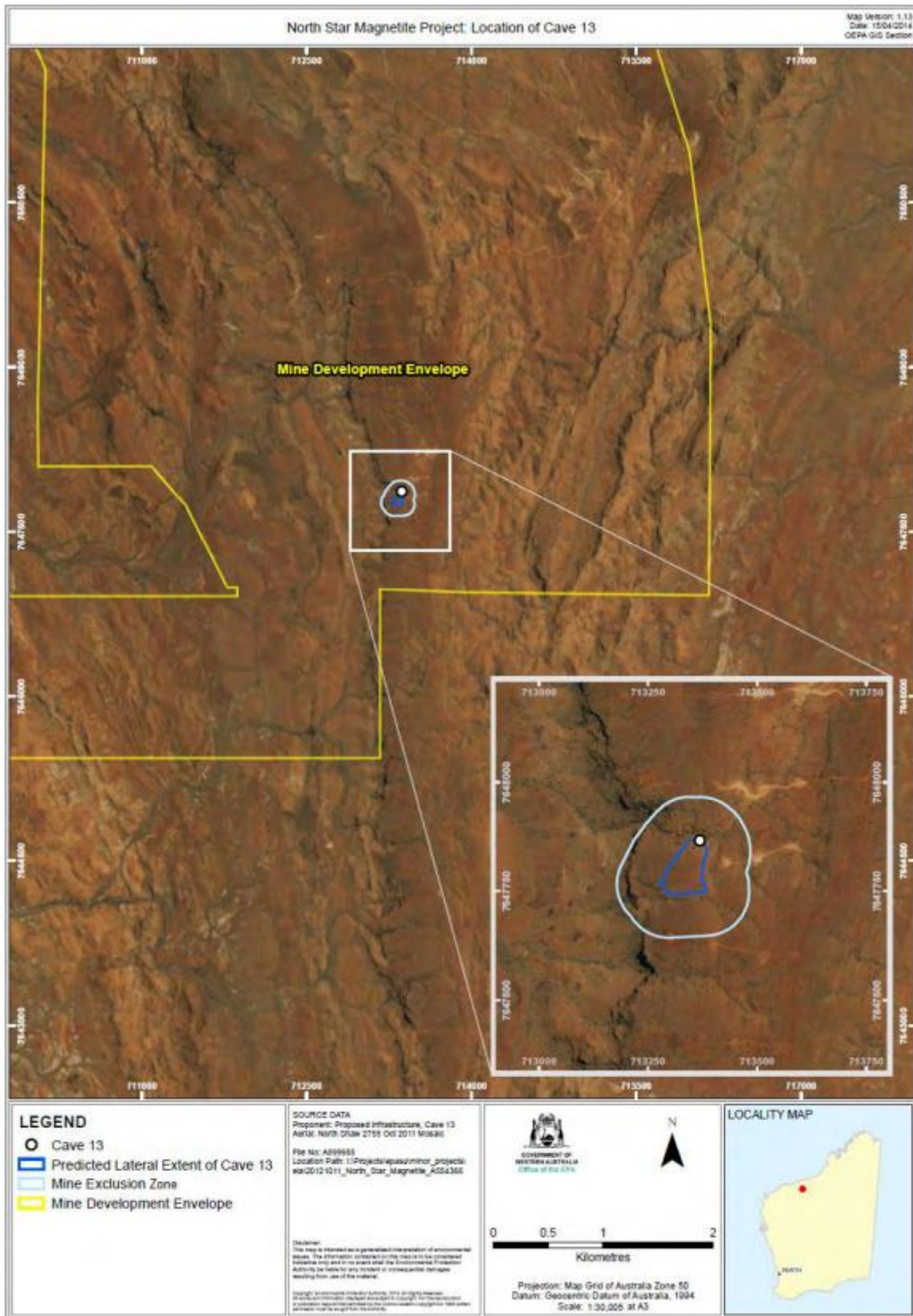


Figure 6: Map of predicted lateral extent of Cave 13

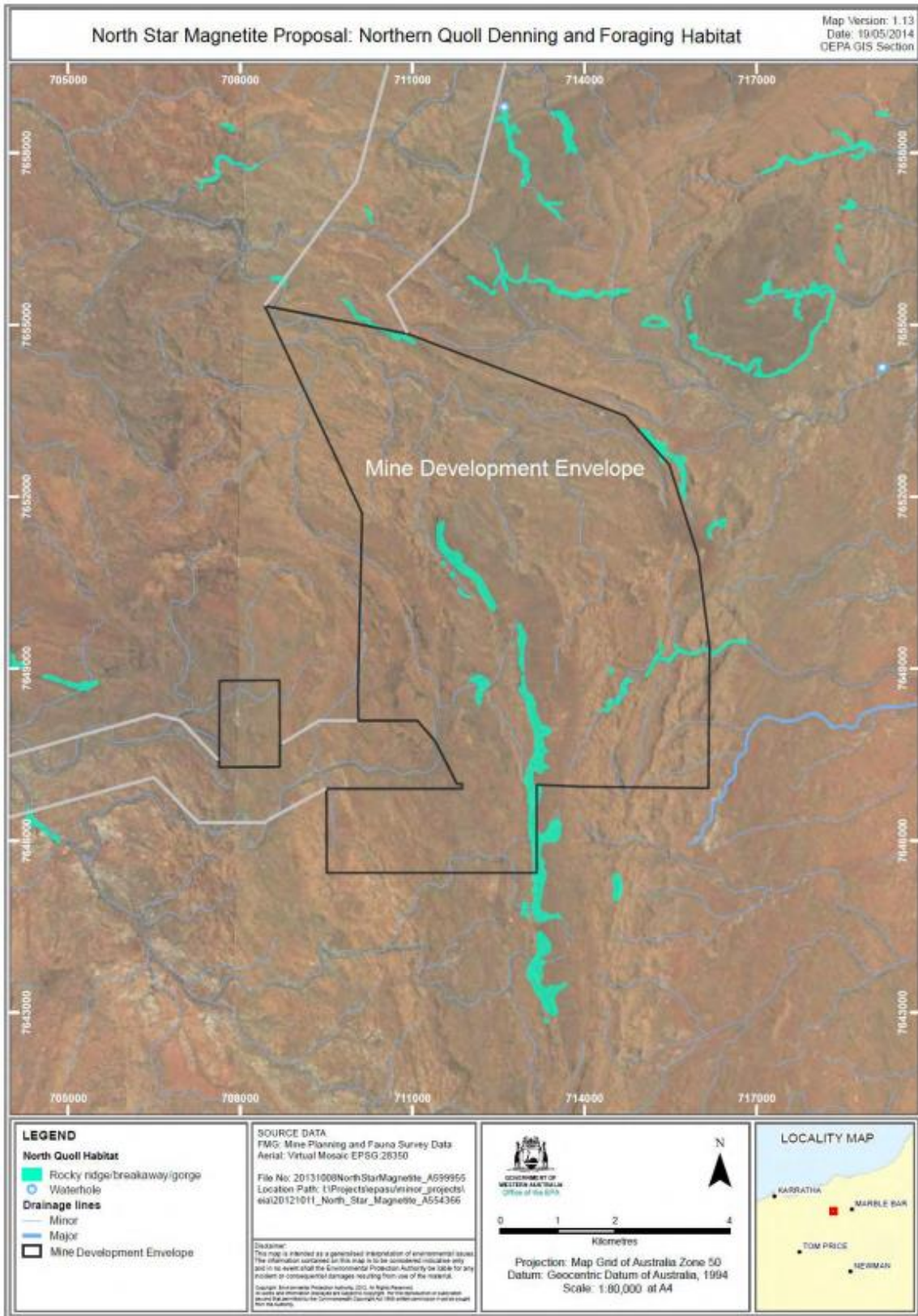


Figure 7: Northern Quoll foraging and denning habitat

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change 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 Licence Holder 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 Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L8845/2014/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. from the activities listed in Table 1.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Operation								
Operation of MCSFs to crush waste rock Fines from the screening process Vehicle movements Stockpiles of waste rock	Dust	Air/windborne pathway causing impacts to health and amenity	Determined Native Title Holders Wodgina Shared Village mining camp Atlas Iron mining camp	Refer to Table 2 in Section 3.1.1	C = Minor L = Rare Low Risk	Y	N/A	The Delegated Officer has considered the separation distance between the source and receptors; and the likely low frequency and short duration of visitors to the area outside the Premises as a guide to inform the risk of dust emissions as not foreseeable. Dust can be adequately regulated by section 49 of the EP Act.
		Air/windborne pathway causing impacts to water quality or ecosystem function	Surface water	Refer to Table 2 in Section 3.1.1, especially the <i>Surface Water Management Plan</i> (NS-0000-PL-EN-0001).	C = Moderate L = Possible Medium Risk	Y	Condition 1.3.4, 4.2.1	The Delegated Officer has specified separation distances between MCSF activities and water bodies, consistent with the Licence Holder's proposed control to position the MCSF away from major water bodies.
		Air/windborne pathway causing indirect impacts via dust deposition	Aboriginal heritage sites within or close to the Premises	Refer to Table 2 in Section 3.1.1	C = Minor L = Rare Low Risk	N	Condition 1.3.4, 4.2.1	The Delegated Officer has specified a separation distance to avoid indirect impacts via dust deposition. Direct impacts can be adequately regulated by the <i>Aboriginal Heritage</i>

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Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
								<i>Act 1972 and/or the Aboriginal Cultural Heritage Act 2021.</i>
		Air/windborne pathway causing impacts to vegetation health and direct impacts to fauna or indirect impacts via habitat	Threatened flora and fauna	Refer to Table 2 in Section 3.1.1	C = Moderate L = Unlikely Medium Risk	N	Condition 1.3.4.4.2.1	The Delegated Officer has specified separation distances between MCSF activities, and priority flora and fauna habitat.
	Noise	Air/windborne pathway causing impacts to health and amenity	Determined Native Title Holders, the Nyamal People #1 Wodgina Shared Village mining camp Atlas Iron mining camp Fauna	Refer to Table 2 in Section 3.1.1	C = Minor L = Rare Low Risk	Y	Condition 1.3.4	The Delegated Officer has considered the separation distance between the source and receptors; and the likely low frequency and short duration of visitors to the area outside the Premises as a guide to inform the risk of noise emissions as not foreseeable. The Delegated Officer has specified separation distances between MCSF activities significant fauna habitat. Noise can be regulated by section 49 of the EP Act.
	Contaminated or potentially contaminated stormwater (chemicals, hydrocarbons)	Direct discharge; stormwater/overland flow; seepage to groundwater	Surface water, Aboriginal heritage sites, flora and fauna, groundwater	Refer to Table 2 in Section 3.1.1, especially the <i>Chemical and Hydrocarbon Management Plan</i> (100-PL-	C = Minor L = Possible Medium Risk	N	Condition 1.3.4.4.2.1	The Delegated Officer has specified separation distances between MCSF activities and water bodies, consistent with the Licence Holder's proposed

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
	and wastes)			EN-0011) and <i>Surface Water Management Plan</i> (NS-0000-PL-EN-0001).				controls. The Delegated Officer has also specified separation distances between MCSF activities and Aboriginal heritage sites, flora, and Northern Quoll habitat.
	Sediment laden stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Surface water, flora and fauna, Aboriginal heritage sites, groundwater					
Operation of the wastewater treatment plant	Odour	Air/windborne pathway causing impacts to health and amenity	Determined Native Title Holders, the Nyamal People #1	Refer to Table 2 in Section 3.1.1	C = Minor L = Rare Low Risk	Y	N/A	The Delegated Officer has considered the separation distance between the source and receptors as a guide to inform the risk of odour impacts to health and amenity as not foreseeable. Odour can be adequately regulated by section 49 of the EP Act.
	Spills	Direct discharge; stormwater/ overland flow; seepage to groundwater	Surface water, groundwater	Refer to Table 2 in Section 3.1.1	C = Minor L = Unlikely Medium Risk	Y	N/A	N/A
Discharge of treated effluent to the Irrigation Field	Treated effluent Reverse osmosis reject water	Direct discharge of effluent by irrigation and spray drift Migration via overland/stormwater flow	Soils, flora, fauna, surface water and groundwater, Aboriginal heritage sites	Refer to Table 2 in Section 3.1.1	C = Moderate L = Possible Medium Risk	N	Conditions 1.3.2, 1.3.3, 1.3.4 , 2.2.1, 2.2.2, 3.2.1, 4.2.1	<u>See section 3.4.</u>

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

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

3.3 Detailed risk assessment for blended effluent discharge

3.3.1 Description of emissions risk event

The Licence Holder proposes to discharge an increased volume of treated wastewater combined with RO reject to the existing 15.1 ha irrigation field. The proposed volumes are 585 m³/day wastewater effluent plus 140 m³/day of RO reject water. The blended effluent will comprise nutrient rich water with elevated salts, and therefore has the potential to cause contamination of soil or environmental impacts such as degradation to groundwater, surface water or native vegetation.

3.3.2 Identification and general characterisation of emission

The Licence Holder proposes to discharge blended effluent to a spray irrigation field. Based on information provided by the Applicant, the water quality is expected to be as per Table 5.

Table 5: Expected water quality of discharge water

Parameter	Treated wastewater effluent	RO reject water
5-day biochemical oxygen demand (BOD5)	<20 mg/L	-
Total suspended solids (TSS)	<30 mg/L	-
Total dissolved solids (TDS)	-	3,500 mg/L ¹
Total nitrogen (TN)	<30 mg/L	2.1 mg/L ²
Total phosphorous (TP)	<8 mg/L	0.29 mg/L ²
Thermotolerant coliforms	<1000 cfu/100mL	-
Residual free chlorine	0.5 mg/L to 2.0 mg/L ³	-
pH	6.5 to 8.5	8.1 ²

¹ The blended effluent is expected to have an average TDS of 1,095 mg/L for normal operation, up to a maximum of 2,000 mg/L to account for seasonal variation and fluctuations in the reverse osmosis recovery rate.

² Based on a sample collected by the Licence Holder in February 2022.

³ The Licence Holder advises that residual free chlorine may be measured either before or after mixing with RO reject. Mixing RO brine will reduce the residual chlorine concentrations in the final blended effluent.

3.3.3 Description of potential adverse impact from the emission

Excess nutrient (TN and TP) may impact native vegetation growth within the spray irrigation field. It may also impact groundwater quality via infiltration through soils to underlying groundwater. If groundwater discharge into surface water occurred close to the irrigation field, poor groundwater quality would also have the potential to impact surface water quality. Groundwater-fed pools of the Turner River surface water catchment are within the Premises but are reported by the applicant to be more than 500 metres from the WWTP.

Pooling of blended effluent water in the spray irrigation field may lead to the discharge of water to the adjacent intermittent waterway, which has the potential to impact surface water quality. Pooling also has the potential to pose a human health risk through direct exposure to pathogens present in the blended effluent. The proposed activities are within the Turner River surface water catchment, which is within the Pilbara Surface Water Area proclaimed under the

RIWI Act. The closest creek line is approximately 150 metres from the WWTP and around 45 metres from the spray irrigation field.

RO reject can contain high concentrations of salt (TDS) causing soil contamination and degradation of vegetation.

Three Aboriginal heritage sites are located 1-1.4km south-west and west-south-west of the proposed WWTP, along watercourses downstream of the spray irrigation field. Limited information as to the nature of these sites was available to DWER at the time of assessment. Based on their distance from the proposed activities, it is not likely that they will be directly impacted by this application. However, based on their locations along waterways, they may represent locations of permanent groundwater-fed pools or important temporary waterways, and may therefore be relevant to this detailed risk assessment.

3.3.4 Criteria for assessment

The guidance documents used for assessment were the Australian and New Zealand Standard AS/NZS 1547/2012 *On-site domestic wastewater management* and the Department of Planning, Lands and Heritage (DPLH) (2019) *Government Sewerage Policy*. The Department of Water and Environmental Protection (2008) *Water Quality Protection Note 22 (WQPN22): Irrigation with nutrient rich wastewater* was used to provide guidance for comparable rates of application for both total nitrogen and phosphorus. The DoH's 2011 *Guidelines for the Non-potable Uses of Recycled Water in Western Australia* were also used to provide guidance for wastewater treatment criteria.

The closest intermittent creek is approximately 150 metres from the WWTP and around 45 metres from the spray irrigation field. The *Government Sewerage Policy* (DPLH, 2019) states that “*an on-site sewage system is not to be located within 100 metres of a waterway*”. Smaller setbacks may be considered where the reduced setbacks will not have a significant impact on the environment or public health. In seeking a reduced setback, “*it is likely that secondary treatment systems with nutrient removal will be required*”.

3.3.5 Applicant controls

The spray field is positioned outside of the 1-in-100 year average flood extent, and on level ground with minor undulations, which is expected to have very low run-off potential.

The irrigation area is located in an area where groundwater is anticipated to be 20 metres below ground level, so the risk of infiltration to groundwater is considered to be low. As such, and given the distance of more than 500 metres to groundwater dependent ecosystems, the risk of nutrient-rich groundwater discharging into surface water should also be low.

The existing irrigation spray field (15.1 ha) was originally sized for a blended effluent of 660 m³/day as part of works approval W6315/2019/1. The applicant proposes to use the existing field for the increased blended effluent volume of up to 725 m³ per day (including 585 m³ per day treated effluent and up to 140 m³/day of RO reject).

The Applicant provided DWER with a soil characterisation report which included soil sampling and particle size distribution analysis. The report provided says that:

“These soils were typically described in the field as a thin layer of loamy sand to silty loam overlying weathered greenstone and sedimentary units. The material was described as well drained and containing approximately 50% gravels, which increased with depth due to the inclusion of rock fragments. ... The particle size distribution data show that these soils have higher average clay content than the other identified SMUs; with reported clay percentages ranging from 7 to 40%. They retain high gravel (>2.36 mm fraction) percentages, averaging 70%. The < 2.36 mm size fraction contained 53 – 86 % sand-size particles, with the silt and clay fraction comprising between 14 – 57% (Table 5.2). Based on this particle size distribution, soils from this SMU are classed as having a Clay to

Sandy loam texture.”

Based on that description, the Applicant characterized the eutrophication risk in accordance with WQPN22 as Risk category “D” (fine-grained soils such as loam, clays or peat with a low eutrophication risk in nearby surface waters).

The applicant has proposed secondary treatment to the expected effluent quality as shown in Table 5. Based on the Applicant’s expected wastewater effluent quality of 30mg/L nitrogen and 8mg/L phosphorus¹, the annual loading to the spray irrigation field will be 6,480 kg/year of total nitrogen and 1,752 kg/year of total phosphorus. Guidance in WQPN22 for soil category “D” is that irrigation should allow for a maximum of 480 kg/ha/year of total nitrogen and 120 kg/ha/year of total phosphorus. Using the calculation methods in WQPN22, the areas required for irrigation of nitrogen and phosphorus are therefore 13.5 ha and 14.6 ha respectively. The existing spray irrigation field is 15.1 ha which exceeds the requirement for nutrient application.

To calculate the area required for hydraulic loading to mitigate run-off of irrigated liquid, the Applicant chose a hydraulic application rate of <5 mm/day (0.005m/day) for gravels and sandy loams from Table M1 of AS/NZS 1547/2012. The irrigation field sizing can then be calculated as follows

$$\text{Area required} = \frac{\text{Flow volume (m}^3\text{/day)}}{\text{Application rate (m/day)}} = \frac{725 \text{ m}^3\text{/day}}{0.005\text{m/day}} = 145,000 \text{ m}^2 = 14.5 \text{ ha}$$

At a hydraulic application rate of <5 mm/day (0.005m/day) for gravels and sandy loams, the area required for the irrigation spray field would be 14.8 ha, which is less than the existing sprayfield. However, DWER notes that the soil type is described as having a “Clay to Sandy loam texture”. AS/NZS 1547/2012 also provides hydraulic application rates of 4 mm/day for loams, and 3.5 mm/day for clay loams. Previous works approval W6315/2019/1 for this irrigation spray field used a hydraulic application rate of 4 mm/day, which if used for this application would lead to an irrigation field sizing of 18.125 ha – which is larger than the existing sprayfield.

DWER notes that the calculations provided in AS/NZS 1547/2012 are generic. At this location, the regional climate has a high evaporation rate (3,000 mm/year) and low average rainfall (457.9 mm), which is likely to reduce the risk of waterlogging or pooling within the spray irrigation field.

The applicant has conducted analysis of remote sensing data (vegetation cover) for the sprayfield to determine any impact arising from the operation of the sprayfield. Since irrigation began in 2014, the measured cover has generally been higher than predicted by the baseline model. The applicant expects that the receiving vegetation community in the irrigation spray field will continue to display tolerance to the irrigation discharge. The proposed total dissolved solids (TDS) limit is below the ANZECC and ARMCANZ (2000) guidelines for tolerant crops. The volume of RO discharge is also not increasing as part of this application.

Effluent is disposed of to a dedicated irrigation field by an automated system that is managed by a trained operator. The trained operator will be responsible for the disposal of effluent to the conditions present. The Applicant has advised that if it is raining or there has been a large rainfall event irrigation will be assessed and may not take place in these periods.

A 300 mm earthen bund is also located around the down-slope perimeter of the spray field as an additional control to prevent run-off outside the spray field perimeter and/or into the nearby intermittent waterway. The applicant has also proposed regular maintenance and inspections

¹ As shown in Table 5, the RO brine contains a low concentration of nutrients in comparison to the treated wastewater effluent. These amounts have been considered insignificant when calculating nutrient loading for the purposes of sizing the spray irrigation field.

of the wastewater treatment plant and spray field.

The Delegated Officer included an additional condition in the works approval W6602/2021/1 to require weekly visual inspections of the irrigation spray field to ensure that no pooling or run-off was occurring outside of the spray field boundary. The results of those inspections are to be reported to DWER at the end of the time-limited operations carried out under W6602/2021/1. Time-limited operations were ongoing at the time of this assessment.

3.3.6 Consequence of risk event

If irrigation of excessive nutrients (TN or TP) and RO reject effluent results in increased vegetation degradation and soil sodicity, or eutrophication or degradation of the adjacent intermittent waterway, then the Delegated Officer has determined that mid-level on-site impacts and low off-site impacts with Specific Consequence Criteria are at risk of not being met. Therefore, the Delegated Officer considers the consequence excessive nutrients (TP) and RO reject effluent discharge and soil sodicity to be **Moderate**.

3.3.7 Likelihood of risk event

The calculations for nutrient and hydraulic loading in section 3.3.4 indicate that the spray irrigation field is large enough for the proposed nitrogen and phosphorus application. The expected effluent quality (E. Coli, TN and TP) as proposed by the applicant does exceed the standards for secondary treatment systems with nutrient removal as published in the *Government Sewerage Policy* (DPLH, 2019), which is relevant because the irrigation field is less than 100 metres from a waterway. However, the applicant has proposed additional controls to reduce the likelihood of pooling and/or surface water run-off into the waterway, as described in section 3.3.5.

The spray irrigation field is also likely to be large enough on average for the hydraulic loading given the regional climate (much greater evaporation rate compared to average rainfall), but there will be seasonal variation in climate that may necessitate additional monitoring or management to prevent adverse impacts during the wet season. The applicant has proposed that a trained operator will assess conditions when it is raining or there has been a large rainfall event and irrigation may not take place in these periods.

Taking into account the design, location and proposed management of the spray irrigation field, the Delegated Officer has determined that the risk event will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood of the risk event to be **Unlikely**.

3.3.8 Overall risk rating

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix contained in Guidance Statement: Risk Assessment (DER 2017) and determined that the overall rating for the risk of blended effluent discharge to the spray irrigation field is **Medium**.

3.3.9 Justification for additional regulatory controls

The controls proposed by the applicant to reduce the likelihood of pooling and/or surface water run-off into the waterway are key to preventing adverse impacts to the intermittent waterway, which is less than 100 metres from the spray irrigation field. To ensure that these controls are effective, the Delegated Officer will require as a condition of the amended licence that irrigation is managed such that there is no ponding or pooling of blended effluent on the ground surface of the irrigation spray field, and run-off or discharge beyond the spray irrigation field it is not permitted.

The spray irrigation field is less than 100 metres from the intermittent waterway. Consistent with guidance in the *Government Sewerage Policy* (DPLH, 2019) that wastewater treatment

should therefore comprise secondary treatment with nutrient removal, the Delegated Officer will require emissions to land to meet emissions and discharge limits consistent with the nutrient removal treatment capacity of the WWTP. These limits are in addition to the controls proposed by the Applicant to reduce the likelihood of pooling and/or surface water run-off into the waterway.

To ensure that the discharge of RO reject to the irrigation field does not cause vegetation degradation and soil sodicity, the Delegated Officer will require that no discharge of undiluted RO brine is permitted.

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 (28/02/2022)	None received	N/A
Local Government Authority advised of proposal (28/02/2022)	None received	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (28/02/2022)	None received	N/A
Nyamal Aboriginal Corporation advised of proposal (28/02/2022)	None received	N/A
DoH advised of proposal (28/02/2022)	<p>DoH responded on 28 March 2022 providing the following comment.</p> <p>Water supply</p> <p>The development is to have access to a sufficient supply of potable water that is of the quality specified under the <i>Australian Drinking Water Guidelines 2011</i>.</p> <p>Wastewater</p> <p>For the management of wastewater, DoH has no objection to this proposal, subject to the following.</p> <p>The wastewater treatment plant is to be engineer certified to accommodate the number of personnel and proposed volumes of 350L/person/day and 30kL from other sites; structural integrity for a minimum of 15 years; water quality criteria; and other DoH health criteria.</p>	<p>Water supply</p> <p>DWER will provide this advice to the Applicant, however the supply of potable water is outside the scope of the licence amendment and therefore DWER's assessment.</p> <p>Wastewater</p> <p>The engineering design of the WWTP was considered during the assessment of works approvals W6315/2019/1 and W6602/2021/1. Additional approvals from the Shire of East Pilbara and/or DoH may also be required prior to commencing operations.</p> <p>This site is not located within a sewage sensitive area or a public drinking water source area.</p>

	<p>A specific site and soil evaluation (SSE) report is required for the proposal, to be undertaken by a qualified consultant that is conducted during the wettest seasonal time of the year (February/March) as per AS/NZS 1547:2012 requirements.</p> <p>The disposal area/s are required to be adequately sized based on the SSE report.</p> <p>The wastewater treatment and disposal area are to treat and dispose of human wastewater only.</p> <p>Consider the Government Sewage Policy requirements by determining if this site is located within a sewage sensitive area and design the on-site wastewater treatment and disposal area accordingly.</p> <p>Provide plans detailing the proposed building envelopes, land application area/s and exclusion zones for the proposal.</p> <p>Consider nuisances such as odours, noise and vibration from the wastewater treatment plant, disposal area and sprinkler spray in relation to accommodation or sensitive land uses (if applicable).</p> <p>The overflow dam is to be engineer certified to meet DoH policy requirements including structural integrity.</p> <p>Mobile crushing and screening plant</p> <p>The current DWER licence L8845/2014/1 does not include mobile crushing and screening plant as a “Point Source Emission to Air” (s2.1 Table 2.1.1). This should be added to the licence and appropriate operating conditions to monitor and manage any emissions arising.</p> <p>Applicant submissions indicate that dust emissions from the mobile plant area are to be managed in accordance with the Mine & Rail Dust Management Plan, including management of feed and product stockpiles, dust suppression, and atmospheric dust monitoring. This document has not been submitted to DoH for review and therefore DoH cannot make comment on the</p>	<p>Refer to Table 4 for risk assessment with regard to odour and noise (which includes vibration).</p> <p>Please also refer to section 3.3.</p> <p>Mobile crushing and screening plant</p> <p>The Delegated Officer has considered the separation distance between the source and receptors; and the likely low frequency and short duration of visitors to the area outside the Premises as a guide to inform the risk of dust emissions as not foreseeable.</p> <p>In accordance with the <i>Guideline: Risk assessments</i> (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.</p>
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	<p>suitability or adequacy of dust monitoring and management measures.</p> <p>The proposed plant should not be operated within 1 km of any sensitive land uses (including mine worker accommodation) in accordance with EPA (2005) guideline “Separation distances between industrial and sensitive land uses”.</p> <p>On this basis the only likely dust exposure and health risk will be to on-site workers and WorkSafe should be consulted.</p>	<p>DWER has included operating conditions to monitor and manage dust emissions which are consistent with controls proposed and management plans provided by the Applicant.</p> <p>Dust can be adequately regulated by section 49 of the EP Act.</p>
Licence Holder was provided with draft amendment on 21 June 2022	Refer to Appendix 1.	Refer to Appendix 1.

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 7: Summary of licence amendments

Condition no.	Proposed amendments
1.2.4	Inclusion of production capacity limit for screening of material.
1.3.2	Increase of sewage waste acceptance quantity limit and inclusion of a quantity limit for RO reject water.
1.3.3	Change to process requirements for sewage waste (increased volume).
1.3.4	Changes to operational requirements for the wastewater treatment plant, RO brine tank and irrigation of blended effluent; and inclusion of operational and location requirements for MCSFs, in accordance with the outcomes of the risk assessment (Table 4). Updated condition format.
2.2.1	Updated description of the irrigation field and change to description of emissions to land from “treated wastewater” to “blended effluent”.
2.2.2	Inclusion of limits for discharges to land at the irrigation field, in accordance with the outcomes of the risk assessment (section 3.3).
3.2.1	Updated description of the discharge point infrastructure. Removal of averaging period for cumulative flow volume discharged to the irrigation field. Decrease in monitoring frequency from “Monthly when irrigating” to “Quarterly when irrigating”.

4.2.1	<p>Clarification on reporting for waste acceptance and treatment capacity limits.</p> <p>Inclusion of reporting for MCSF operations.</p> <p>Inclusion of reporting related to the blended effluent discharge limits in condition 2.2.2.</p>
5	<p>Removal of conditions related to the construction of a concrete batching facility infrastructure, which has now been completed. A description of the operational requirements of the infrastructure has been added to Table 1.3.3.</p>

References

1. Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) 2000, *National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3: Primary Industries – Rationale and Background Information*, Canberra, Australian Capital Territory.
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Health (DoH) 2011, *Guidelines for the Non-potable Uses of Recycled Water in Western Australia*.
4. Department of Health (DoH) 2021, *Site and soil evaluation for onsite wastewater management*, Perth, Western Australia. Available from: https://ww2.health.wa.gov.au/Articles/S_T/Site-and-soil-evaluation-for-onsite-wastewater-management [February 2022]
5. Department of Planning, Lands and Heritage 2019, *Government Sewerage Policy*, Perth, Western Australia
6. Department of Water and Environmental Protection (2008) *Water Quality Protection Note 22 (WQPN22): Irrigation with nutrient rich wastewater*, Perth, Western Australia.
7. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
8. DWER 2020, *Guideline: - Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Condition 2.2.2, Table 2.2.2	Remove water quality limits for discharge of blended effluent to the irrigation field, to align with other licenses held by the Licence Holder.	Water quality limits were placed on this licence as an additional control, as an outcome of the risk assessment. This is explained in section 3.3.9. The Department consulted further with IB Operations which advised that the limits can and will be met. IB Operations commented that the limits are also required in order to satisfy Department of Health requirements. The department has retained the water quality limits in the Revised Licence.
Condition 3.2.1, Table 3.2.1	Change the frequency of water quality monitoring on the irrigation area monitoring point from "monthly when irrigating" to "quarterly when irrigating", to maintain consistency with other licenses held by the Licence Holder in relation to operational monitoring.	<p>The frequency of water quality monitoring on the irrigation area monitoring point was set as "monthly" in a previous licence amendment on 2 June 2016, when Category 54 was originally to the licence. The frequency was changed to "monthly when irrigating" following an amendment on 24 May 2017, as requested by the Licence Holder.</p> <p>The Licence Holder did not request a decrease in monitoring frequency from monthly to quarterly, as part of this Application. Notwithstanding this, the Delegated Officer considers that the requested change is consistent with monitoring frequency on similar licences, and does not increase the risk posed by the irrigation of blended effluent to land. A number of other controls (in addition to monitoring) also apply to the activity as discussed in section 3.3.5, and water quality limits apply as explained in section 3.3.9.</p>
Condition 4.2.1, row 6 of Table 4.2.1	Remove mention to trigger exceedances, because none exist in "Table 3.2.1: Monitoring of emissions to land".	The exceedances intended by this text were the water quality limits in Table 2.2.2: Emissions to land. In the revised licence, the Department added an additional row in the table related to Table 2.2.2, which contains reference to exceedances of limits.
Condition 4.2.1, Table 4.2.1	Change Table 1.2.4 to Table 1.2.3, because Table 1.2.4 does not exist in the draft licence.	This typographical error was corrected in the final licence.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	<input 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 checked="" type="checkbox"/>	Current licence number:	L8845/2014/1		
		Relevant works approval number:	W6602/2021/1	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:		None	<input type="checkbox"/>
Date application received	11 October 2021				
Applicant and Premises details					
Applicant name/s (full legal name/s)	IB Operations Pty Ltd				
Premises name	Iron Bridge Magnetite Project				
Premises location	M45/1226, M45/1244, L45/293, L45/294, L45/359, L45/360, L45/361, L45/364 and L45/367, as granted under the <i>Mining Act 1978</i> . Marble Bar, WA 6760				
Local Government Authority	Shire of East Pilbara				
Application documents					
HPCM file reference number:	DER2014/002065-1~10 A2052266: application form and DWERDT513645: further attachments DWERDT527999: Attachment 9, fee calculation A2052269: cover letter				

<p>Key application documents (additional to application form):</p>	<p>A2052267: attachment 8A authority letter A2052268: attachment 8 DoH records A2052270: attachment 3B, and also attachments to that stored under DWERDT513645:</p> <ul style="list-style-type: none"> • Appendix 1. Mobile Crushing and Screening Environmental Management Procedure • Appendix 2. Mine and Rail Dust Management Plan • Appendix 3. Surface Water Management Plan • Appendix 4. Chemical and Hydrocarbon Management Plan • Appendix 5. Chemical & Hydrocarbon Storage Procedure • Appendix 6. Chemical and Hydrocarbon Spills Procedure • Appendix 7. Waste Management Plan • Appendix 8. W6315/2019/1 - Env. Commissioning Report • Appendix 9. North Star Effluent Spray Fields Remote Sensing Analysis (Vegetation Cover) <p>DWERDT527999: Attachment 9, fee calculation</p>
Scope of application/assessment	
<p>Summary of proposed activities or changes to existing operations.</p>	<ol style="list-style-type: none"> 1. Amend the licence to add category 12, operation of mobile crushing and screening facilities (MCSFs) to crush waste rock to assist with construction requirements, anywhere in the prescribed premises boundary. L8845/2014/1 will be amended at a later date to allow for the beneficiation of ore (category 5), as approved in W6322/2014/1. 2. Original application requested increased throughput for the WWTP (category 54) to allow the existing wastewater treatment plant (currently licensed to operate at 205 m³ per day) to operate at a larger capacity (520 m³ per day). No infrastructure changes were necessary. After submitting the application, the WWTP's infrastructure was subsequently recently upgraded to treat 585 m³/day wastewater under W6602/2021/1, and compliance documentation was submitted to DWER on 22 April 2022. 3. Revise discharge parameters for WWTP for residual chlorine and total dissolved solids (TDS) effluent quality: <ol style="list-style-type: none"> a. Residual chlorine exceeded the 2mg/L limit on three occasions since commissioning in July 2020; IBO is investigating an automated chlorine monitoring and dosing system to assist in the consistent application of sodium hypochlorite. b. IBO can't achieve the 750mg/L specification for TDS and request it be raised to 2,000 mg/L.

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to production or design capacity
Category 5: Processing or beneficiation of metallic or non-metallic ore	50,000 tonnes per annual period	No changes
Category 12: Operation of mobile crushing and screening plants	N/A	Up to 5,000,000 m ³
Category 52: Electric power generation	14 MWe per annual period	No changes
Category 54: Operation of a wastewater treatment plant and irrigation field	205m ³ /day	520m ³ /day
Category 77: Concrete batching or cement products manufacturing	217,000 tonnes per annual period	No changes

Legislative context and other approvals

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?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input checked="" type="checkbox"/>	
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial statement No: MS 993 EPA Report No: 1514	
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Reference No: EPBC 2012/6689	
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: 30/10/2033 M45/1226 tenement holders are FMG Magnetite Pty Ltd and Formosa Steel IB Pty Ltd. the applicant is 69% owned by FMG Magnetite Pty Ltd and 31%	

		owned by Formosa Steel IB Pty Ltd. Other evidence <input 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"/>	If N/A explain why? Developed on <i>Mining Act 1978</i> tenure.	
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: No clearing proposed.	
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: No clearing proposed.	
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 checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: GWL 179289, CAW203155(1)	
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Name: Pilbara Surface Water Area, Pilbara Groundwater Area Type: Proclaimed Groundwater Area and Surface Water Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/> Regional office: North West	
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"/>	
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>)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Attachment 8 comprises approval from the Department of Health to construct or install an apparatus for the treatment of sewage (1400EP wastewater treatment plant to a maximum volume of 520,000 litres per day, with 158,000 m ² surface “ spray irrigation to a maximum volume of 660,000 L per day) under the <i>Health (Treatment of Sewage and Disposal of</i>	

		<i>Effluent and Liquid Waste) Regulation 1974. The approval includes conditions.</i> <i>The proponent is approved under Mining Act 1978, Mining Proposal (Reg ID 88861).</i>	
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		