



Application for Licence

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

Works Approval Number	W6863/2023/1
Applicant	Fortescue Ltd
File number	DWERVT13704~30
Premises	Eliwana Rail Camp CH95 Wastewater Treatment Plant Legal description - Part of Mining Tenure L47/816 As defined by the coordinates in Schedule 2 of the works approval As defined by the premises map in Schedule 1 of the Works Approval
Date of report	19/03/2024
Decision	Works approval granted

**A/MANAGER WASTE INDUSTRIES
REGULATORY SERVICES**

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

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, Works Approval W6863/2023/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

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

2.2 Application summary and overview of premises

On 9 November 2023, Fortescue Metals Group Ltd (the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). The works approval is for a Prescribed Premises Category 54 sewage facility comprising a wastewater treatment plant (WWTP), pipeline and irrigation field.

The Applicant intends to continue to develop the Eliwana Rail Project which comprises a 120 km railway linking the existing Solomon Mine with the proposed Eliwana Iron Ore Mine, located 90 km west-north-west of Tom Price. The Premises will be associated with a railway construction camp at chainage (CH) 95 on the railway.

The proposed camp will be located at rail chainage CH95 on the Eliwana Rail Project, approximately 64 km north west of Tom Price and accommodate up to 500 people. The design of the WWTP and RO plant is based on the application of a conservative estimate of an output of wastewater produced at 200 L/person/day.

The camp will include the following components:

- a WWTP and RO plant with an estimated throughput capacity of up to 150 m³ per day (consisting of up to 50 m³ of RO reject and 100 m³ of treated effluent);
- a 3 ha irrigation sprayfield for the disposal of treated wastewater, pipeline corridor and other associated supporting infrastructure

2.2.1 Proposed works

The proposed works will include installation of a containerised and enclosed WWTP sequence batch reactor (SBR) system capable of treating up to 150 m³ of sewerage per day. The wastewater is disposed of via an irrigation sprayfield (approximately 3,000 m²).

The applicant requested the works approval scope include construction, commissioning and time-limited operations (TLO) of the WWTP and associated infrastructure.

2.2.2 Premises operations

WWTP

Wastewater from the Eliwana Rail Camp CH95 WWTP treatment process is arranged in an SBR configuration consisting of a primary tank, screen, and balance tank front end. The SBR process features a combined anoxic/aerobic biological suspended growth treatment process which relies on bacterial action to achieve the following:

- coagulate and remove the non-settleable colloidal solids and carbonaceous organic

matter;

- convert the colloidal and dissolved carbonaceous organic matter into various gases and cell mass; and
- reduce the nutrients such as nitrogen and, phosphorus and other trace organic compounds.

The WWTP will treat effluent to meet the specifications in Table 1.

Table 1: Anticipated treated effluent quality

Parameter	Concentration
BOD ₅	<20 mg/L
Total suspended solids	<30 mg/L
Total nitrogen	<20 mg/L
Total phosphorus	<7.5 mg/L
Thermotolerant coliforms	≤1000 colony forming units (CFU)/100 mL
Residual free chlorine	0.2-2.0 mg/L
pH	6.5 – 8.5

Sludge produced by the WWTP will be collected in sludge tanks. Sludge will be removed periodically from the tanks by a licenced carrier and taken offsite for disposal at an appropriately licensed facility.

Irrigation Sprayfield

The irrigation sprayfield has been sized and location of the irrigation sprayers determined with respect to local wind data. The outcome of the proposed layout is the minimisation of spray drift during windy conditions and to reduce the risk of treated wastewater leaving the irrigation sprayfield. To achieve this, the irrigation sprayfield will have a buffer distance of 5 m between sprinklers and perimeter fence.

Based on the anticipated treated effluent quality and the soil risk category in accordance with the Water Quality Protection Note 22 (Department of Water, 2008), a minimum sprayfield of 2.28 hectares is required. The irrigation sprayfield of 3 hectares is therefore considered suitable.

3. Risk assessment

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

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

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and

operation which have been considered in this decision report are detailed in Table 2 below. Table 2 also details the 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	Vehicle and plant movements and associated activities. Installation of WWTP associated infrastructure.	Air/windborne pathway causing impacts to health and amenity.	Dust will be controlled using water carts Vehicle speed limits in relevant work areas
Noise	Construction works of the WWTP	Air/windborne pathway causing impacts to health and amenity.	No noise outside of working business hours. All mechanical equipment will be regularly checked and maintained Use of modern, low noise emission equipment
Hydrocarbons and chemicals (spills and leaks)	Installation of WWTP and associated infrastructure.	Overland runoff / migration into surface water ways potentially causing ecosystem disturbance or impacting surface water quality. Localised contamination of soils causing impacts to amenity	Spill kits will be available during construction to manage and clean up spills immediately. Contaminated material generated by spills will be disposed offsite to a licensed facility.
Operation (including time-limited-operations)			
Odour	Incorrect wastewater chemical treatment balance. Storage of wastewater/solids.	Air/windborne pathway causing impacts to health and amenity	Wastewater is treated prior to irrigation Regular inspection of equipment by a certified technician The WWTP will be commissioned in accordance with manufacturers specifications Computerised monitoring system of the WWTP with an alarm that will raise an alert if malfunctioning The WWTP is appropriately designed and operated to mitigate the risk of odour emissions Containerised WWTP with enclosed tanks.
Wastewaters,	Spills/leaks of raw	Overland runoff,	Desludging will be completed by

Emission	Sources	Potential pathways	Proposed controls
contaminated stormwater and treated wastewater	<p>sewage, treated effluent, sludge and chemical.</p> <p>Discharge of wastewater to land prior to treatment</p> <p>Incorrect discharge rate to land</p>	direct discharge and migration via soil to groundwater	<p>Licensed Liquid Waste Contractor and will be disposed of at a suitably licenced facility</p> <p>Computerised monitoring system with an alarm that will raise an alert if malfunctioning</p> <p>Solid waste generated in the WWTP will be removed by a licensed contractor and disposed of to a suitable licensed facility.</p> <p>Sited to minimise risks associated with surface water tables, waterlogging and flooding.</p> <p>Irrigation sprayfield sized with consideration of nutrient loading, soil type and treated wastewater concentrations.</p> <p>5 m spray drift buffer from the edge of sprinkler radius to the fence.</p> <p>Irrigation managed to ensure treated effluent will not pool on the surface where it can flow to the surrounding environment.</p>

3.1.2 Receptors

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

Table 3 and Figure 1 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
Native Title Holders of the Wintawari Guruma Aboriginal Corporation	The Premises is located within the Eastern Guruma Native Title Determination area. Native Title Holders visiting this area are considered a potential human receptor to activities on the Premises.
Visitors to the Nharraminju Wuntu Rock Art Precinct	2.8 km north-east of the premises boundary.
Environmental receptors	Distance from prescribed activity
Surface water	Based on the 1:250,000 Hydrography WA map of the region:

	<ul style="list-style-type: none"> • The proposed irrigation sprayfield is located within approximately 10 m of an unnamed non-perennial watercourse. • The proposed WWTP is located within approximately 560 m of an unnamed non-perennial watercourse to the south-east and within 590 m of an unnamed nonperennial watercourse to the north-west. <p>These surface water features are tributaries to Duck Creek which is located to the north of the Premises.</p>
Underlying groundwater	Groundwater levels within the vicinity of the Premises are understood to be greater than 10 metres below ground level.
Threatened and Priority Fauna	<p>Two occurrences of <i>Leiopotherapon aheneus</i> (Fortescue grunter), a Priority 4 fish species within 5 km of the Premises.</p> <p>Three occurrences of <i>Rhinonictoris aurantia</i> (Pilbara leafnosed bat), a Vulnerable mammal species within 5 km of the Premises.</p> <p>One occurrence of <i>Pseudomys chapmani</i> (western pebblemound mouse), a Priority 4 mammal species within 5 km of the Premises.</p>
Threatened and Priority Flora	Four occurrences of Priority 3 flora species were identified within 5 km of the Premises.

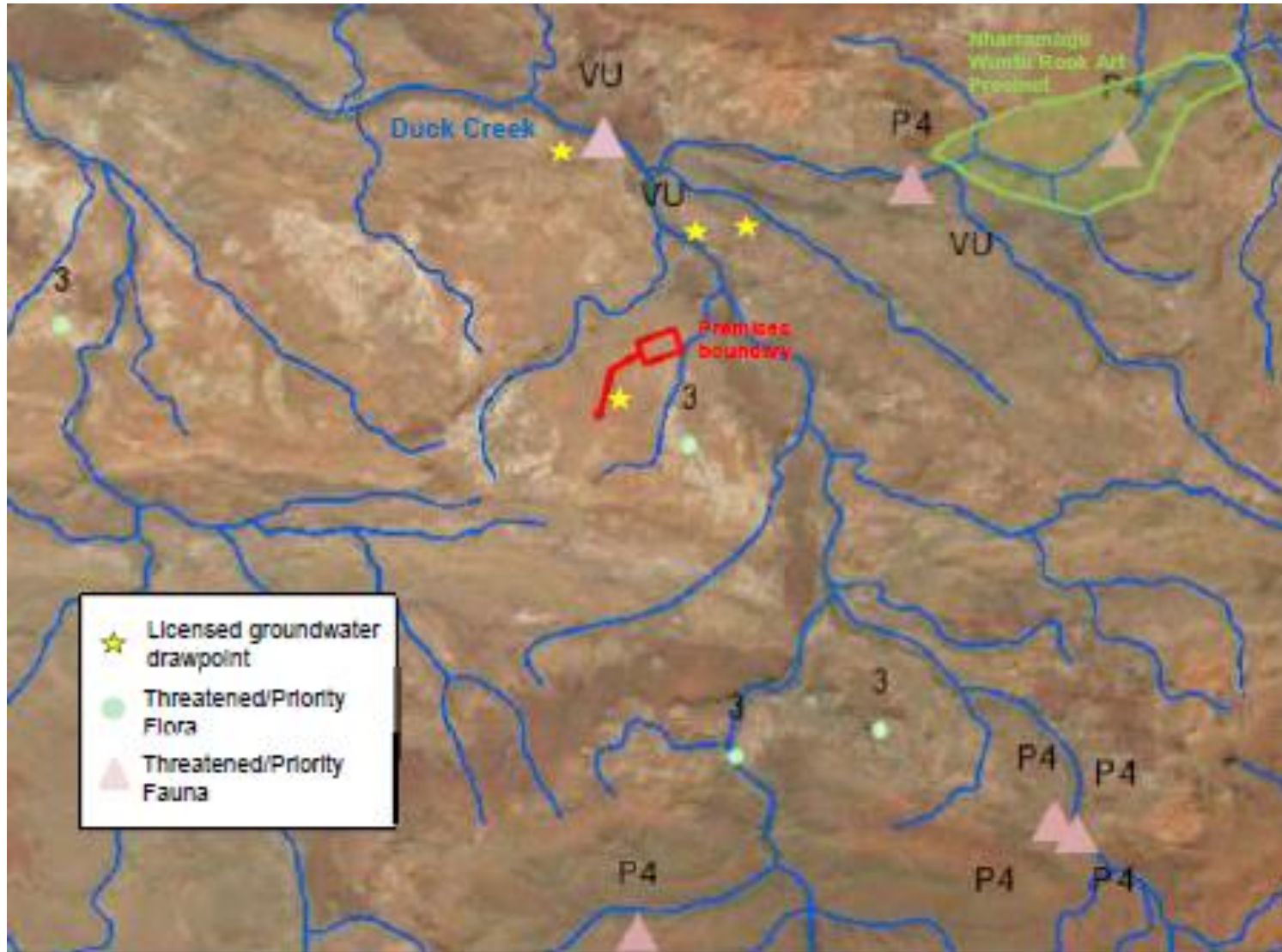


Figure 1: Distance to sensitive receptors

3.2 Risk ratings

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

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

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

Works approval W6835/2023/1 that accompanies this decision report authorises construction and time-limited operations. 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 following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. 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.

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

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Vehicle movements Construction and installation WWTP and associated infrastructure and equipment	Dust	Air / windborne pathway causing impacts to health and amenity	Native Title Holders of the Wintawari Guruma Aboriginal Corporation	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
	Noise		Visitors to the Nharraminju Wuntu Rock Art Precinct (2.8 km north-east)	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
	Spills/ unintended releases of hydrocarbons or chemicals	Localised contamination of soils and groundwater causing impacts to amenity	Underlying groundwater	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1 and 14	N/A

Commissioning and Operation (including time-limited-operations operations)								
Commissioning and time limited operation of the WWTP and irrigation spray field (including equipment alarms)	Noise	Air / windborne pathway causing impacts to health and amenity	Native Title Holders of the Wintawari Guruma Aboriginal Corporation Visitors to the Nharraminju Wuntu Rock Art Precinct (2.8 km north-east)	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Conditions 1, 6, 14 and 21	N/A
	Odour							
	Discharge of partially treated wastewater (commissioning phase)	Localised contamination of soils causing infiltration into groundwater	Underlying groundwater	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 6 and 14-17	N/A
	Discharge of treated wastewater	Localised contamination of soils causing infiltration into groundwater	Underlying groundwater	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 6 and 14-17	N/A
	Spills/ unintended releases of untreated wastewater, solid waste or treatment chemicals	Overland runoff, direct discharge and migration via soil to groundwater.	Underlying groundwater	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 6 and 14-17	N/A

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

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

4. Consultation

Table 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 on 6 December 2023	None received	N/A
Local Government Authority advised of proposal on 6 December 2023	Shire of Ashburton replied 20 December 2023 stating no objection to the proposal.	N/A
Department of Health (DOH) advised of proposal on 3 October 2023	DOH replied 12 January 2024 with the following comments: <ul style="list-style-type: none"> An onsite wastewater application is required to be submitted to the Local Government for assessment and forwarded to the DoH for approval. The onsite wastewater disposal system(s) shall be adequately sized to accommodate the peak number of occupants in accordance with current health legislation. Setback distances based on current health sewage legislation are required from the effluent treatment area(s) and/or land application area(s) to any subsoil drainage system and open drainage channel 	The department notes the response from DOH and this information is provided to the applicant in this decision report and has been taken into consideration in the works approval. It is the responsibility of the works approval holder to ensure all necessary approvals are obtained for the construction and operation of the WWTP.
Applicant was provided with draft documents on 9 February 2024	Applicant replied on 29 February 2024. Refer to Appendix 1.	Refer to Appendix 1

5. Conclusion

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

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. Department of Water 2008, *Water Quality Protection Note 22, Irrigation with nutrient-rich wastewater*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

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

Condition	Summary of Works Approval Holder's comment	Department's response
4 (b)	Requests to reword condition to "as constructed plans or a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1"	The Delegated Officer declines the request. The condition has standardised department wording and requirements for an Environmental Compliance Report (ECR)
11	Correct the condition to reference condition 10	The Delegated Officer agrees and has corrected the condition number references.
13	Requests for time limited operations to be 180 days	The Delegated Officer grants this request.
14 - 16	Correct condition wording and combine into one condition.	The Delegated Officer agrees and has corrected the condition.
17 - 25	Condition numbers corrected	The Delegated Officer agrees and has corrected the condition numbers
17 – Table 8	Requests the averaging period for pH, residual chlorine, cumulative flow volume discharged to sprayfield and cumulative flow volume supplied to the irrigation storage tanks be 24 hours.	The Delegated Officer grants this request.
Table 10: Premises boundary coordinates	Request to update the premises boundary coordinates.	The Delegated Officer agrees and has updated the premises boundary coordinates.

Appendix 1: 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"/> N e <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes <input type="checkbox"/> N e <input type="checkbox"/> N/A <input type="checkbox"/>
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes <input type="checkbox"/> N e <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	9 November 2023			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Fortescue Ltd			
Premises name	Eliwana Rail Camp CH95			
Premises location	Mining Act Tenement L47/816			
Local Government Authority	Shire of Ashburton			
Application documents				
HPCM file reference number:	DWERVT13704-30			
Key application documents (additional to application form):	Mineral Tenement Summary ASIC Company Extract Notification of Legal Authority Premises and siting maps Supporting Document			
Scope of application/assessment				
Summary of proposed activities or changes to existing operations.	<p>6. Construction and operation of the Water Treatment Plant (WWTP) and Reverse Osmosis (RO) plant at the Eliwana Rail Camp CH95 with:</p> <ul style="list-style-type: none"> • a maximum throughput capacity of up to 150 m3 per day; and • a 3 ha irrigation sprayfield, pipeline corridor and other associated infrastructure for the disposal of treated wastewater 			

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	Proposed changes to the production or design capacity (amendments only)
Category 54: Sewage facility: premises – a) on which sewage is treated (excluding septic tanks); or b) from which treated sewage is discharged onto land or into waters.	150 m ³ per day	N/A
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 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: 1108 EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Reference No: 2017/8025
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:29/07/2040 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"/>	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: Clearing approved under MS 1108
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 No clearing is 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 type="checkbox"/>	Application reference No: Licence/permit No: GWL203002(2)
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 type="checkbox"/> Regional office:

<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>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>
<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 type="checkbox"/> No <input checked="" type="checkbox"/></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 type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: Date of classification:</p>