Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6353/2020/1
Applicant	Hamersley Iron Pty Ltd
ACN	004 558 276
File Number	DER2019/000647
Premises	Greater Tom Price Iron Ore Mine Mining tenements ML4SA, G47/1258, G47/1260, L47/161, L47/209, L47/210, L47/342, L47/552, L47/645, L47/668, L47/698, L47/721, G47/1271, L47/745, L47/824, L47/826 and L47/858 MOUNT SHEILA WA 6751
Date of Report	18 June 2020
Status of Report	Final

Table of Contents

1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
AS 1940 – 2004	Australian Standard AS 1940-2004: Storage and handling of flammable and combustible liquids
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
cfu/100mL	Colony forming count per one hundred millilitres
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of, and during this Review
GL	gigalitres
HVRF	Heavy Vehicle Refueling Facility
kL	kilo litres
m^3	cubic metres
mbgl	Metres Below Ground Level
MCP	Mobile crusher plant
mg/L	milligrams per litre

mL	millilitres
Minister	the Minister responsible for the EP Act and associated regulations
MS	Ministerial Statement
Mtpa	million tonnes per annum
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
OCL	overland conveyor
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in *Guidance Statement: Risk Assessment*
ROM	Run-of-mine
Works Approval Holder	Hamersley Iron Pty Limited
WTS	Western Turner Syncline
WWTF	Waste water treatment facility

2. Purpose and scope of assessment

On 2 December 2019, Hamersley Iron requested approval for the construction and commissioning of iron ore processing facilities (Category 5), fuel storage facilities (Category 73) and mobile crushing and screening plant/s (Category 12) at Western Turner Syncline to sustain production from Greater Tom Price. The application also includes construction and commissioning of new sewage treatment facilities (Category 54) to replace old and failing existing facilities at the Tom Price mine.

2.1 Application details

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Woks Approval Application and Supporting documents	02/12/2019
Response to further information request	04/05/2020
Response to Draft decision report and draft works approval	10/06/2020

3. Background

The Tom Price Iron Ore Mine (Tom Price mine), located approximately 1.5 kilometres (km) south of the township of Tom Price in the Pilbara region, became operational in 1966 and is the largest and oldest of the Hamersley Iron operations in Western Australia. The Tom Price mine includes open cut above and below water table mining of iron ore, ore processing in central processing facilities at approximately 35 million tonnes per annum (Mtpa) and a rail network which transports processed ore to port facilities located at Dampier. Table 3 lists the prescribed premises categories that have been applied for.

Table 3: Prescribed Premises Categories applied for

Classification of Premises	Description	Design capacity / throughput
Category 5	Processing or beneficiation of metallic or non-metallic ore: premises on which — (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam.	40,000,000 tonnes per annual period
Category 12	Screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	10,000,000 tonnes per annual period
Category 54	Sewage facility: premises — (a) on which sewage is treated (excluding septic tanks); or	40 m^3 per day

	(b) from which treated sewage is discharged onto land or into waters.	
Category 73	Bulk storage of chemicals etc.: premises on which acids, alkalis or chemicals that — (a) contain at least one carbon to carbon bond; and (b) are liquid at STP (standard temperature and pressure), are stored.	Inclusion of 3 x 200 kL fuel storage tank (in addition to the existing approved capacity)

4. Overview of Premises

4.1 Operational aspects

New ore processing facility

The application is for the construction, commissioning and time limited operation, of processing facilities with a total design capacity for processing on the Premises not exceeding 40,000,000 tonnes per annual period. These facilities are required to process high grade ore mined from the B1 and Section 17 deposits.

Mobile crush and screening

Mobile crushing and screening plants with conveyor belts will be located adjacent to the proposed facilities, to provide competent material during the construction period (with total design capacity for mobile crushing / screening on the Premises not exceeding 10,000,000 tonnes per annual period).

Fuel storage and refueling facility

A new Heavy Vehicle Refueling Facility (HVRF) will be required to support the mining fleet. The HVRF will include three 200 kL permanent fuel storage tanks. Additional temporary fuel storage tanks will also be required to support construction.

The cumulative total of fuel storage capacity on the Premises will exceed the Category 73 threshold therefore requiring approval (total design capacity for fuel storage on the Premise is not to exceed 2,250 m^3 in aggregate).

Sewage facility

The existing wastewater treatment facilities (WWTF) at the Tom Price mine have a maximum design capacity of 36 m^3/day. New sewage treatment facilities, with a maximum design capacity of 40 m^3/day per facility, will be installed in an area adjacent to the old WWTF located close to the beneficiation plant near Tom Price Town. One old WWTF will be decommissioned.

The proposed facility is to be located within the proposed Works Approval Prescribed Premise boundary (Figure 1), within the indicative coordinates shown in Table 4.

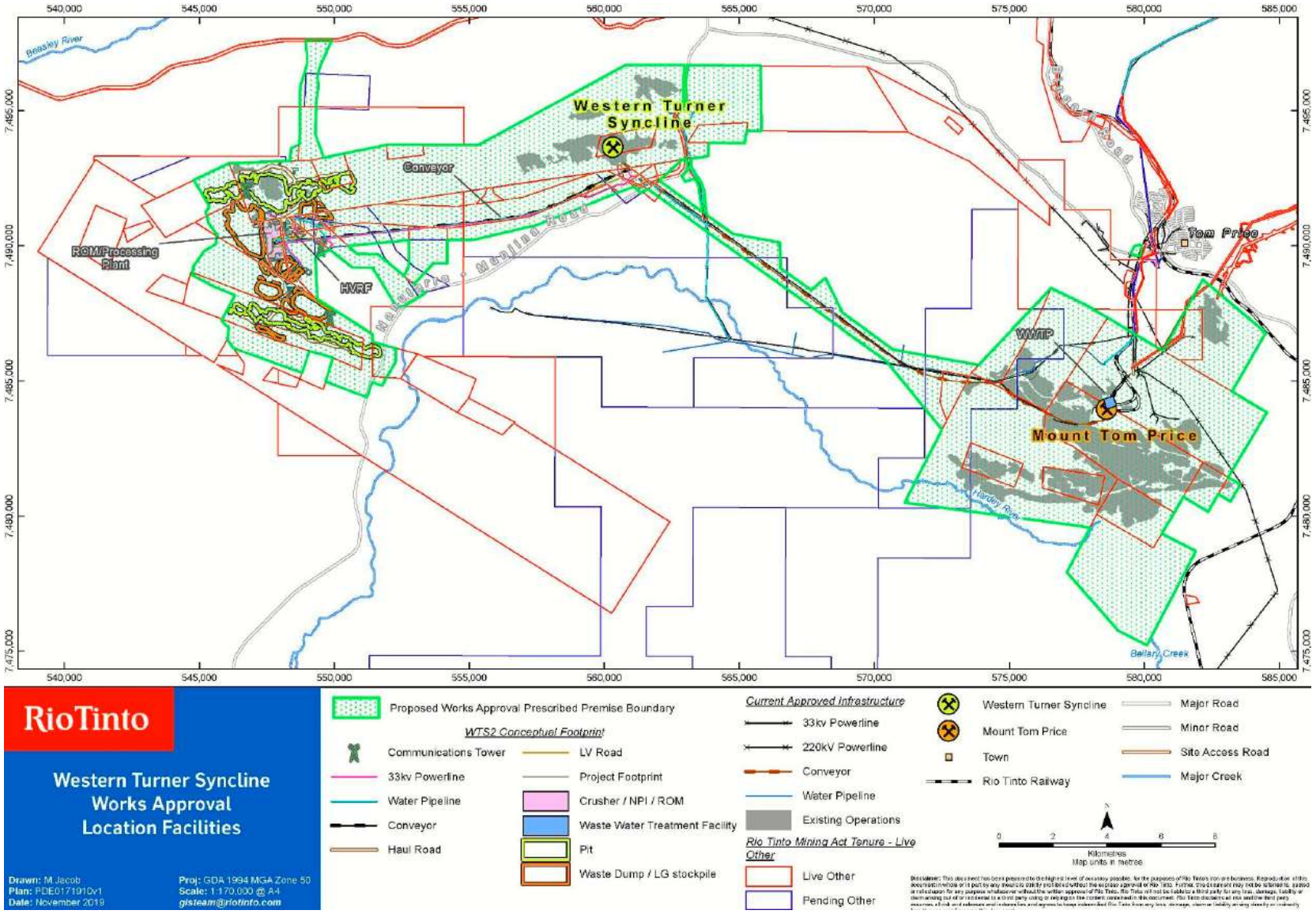

Figure 1: Map of prescribed premises.

Table 4: New infrastructure location

Corner	Easting (m)	Northing (m)
Processing facilities (G47/1258)		
North West	547,723	7,490,189
North East	547,887	7,490,206
South West	547,742	7,490,008
South East	547,906	7,490,025
Conveyor (G47/01260, G47/01271, G47/1258, L47/00209, L47/00645, L47/00824 and L47/00826)		
West	547,890	7,490,116
East	560,997	7,492880
Fuel storage and refueling facilities (L47/00645)		
North West	548,224	7,490,883
North East	548,627	7,490,927
South West	548,292	7,490,576
South East	548,813	7,490,680
Sewage treatment facilities (ML4SA)		
North West	578,724	7,484,200
North East	578,740	7,484,204
South West	578,731	7,484,174
South East	578,748	7,484,180

4.2 Description of proposed activity

New Processing Facility

The new processing facility at WTS2 will include a Run-of-mine (ROM) pad with heavy vehicle access from both B1 and Section 17. Material from the ROM pad will be fed to the ROM bin, which will be designed to accommodate feed from two haul trucks tipping simultaneously at a rate of 36 Mtpa. Ore will be transferred from the ROM bin onto an apron feeder, to a vibrating grizzly with oversize material being fed to the primary crusher. The primary crushing facility will be a gyratory crusher, designed to process 36 Mtpa.

An overland conveyor (OLC) is proposed to transport the ore at a rate of approximately 36 Mtpa. Ore from the primary crusher will be fed to the OLC via a transfer conveyor. The OLC ties in to the existing Section 10 OLC at the eastern extent through a transfer station which includes a surge bin and apron feeder.

Crush and screening area

An amendment to the Prescribed Premise boundary is proposed to allow for the operation of

crushing and screening plant/s adjacent to proposed facilities to provide competent material during construction.

Existing mobile crushing and screening plant/s are expected to be used if they are available. If not available, new mobile crushing and screening plants may be transported to the Premises.

Fuel storage and refuelling

A Heavy Vehicle Refuelling Facility (HVRF) is proposed to support the mining fleet for the Proposal. It will be located near the ROM with direct access to the fuel storage and refuelling facilities from the proposed haul road.

A road train / tanker unloading facility will be provided, to supply fuel to the HVRF. Two tanker unloading pumps will unload the road train / tankers delivering fuel. Tanker unloading will occur over a concrete hardstand with roll-over bunds which will drain into the adjacent pump station bunded area (connected to the oily water collection and treatment system). The transfer of fuel from the tankers to the fuel storage tanks will be metered.

Diesel fuel will be stored at the HVRF in three 200 kL self-bunded fuel storage tanks. The tanks will be designed and constructed to as per Australian Standard 1940-2004: The storage and handling of flammable and combustible liquids, and DMIRS licensing requirements. All fuel storage tanks and transfer points will be above ground, self bunded or within bunded areas / secondarily contained (in accordance with AS 1940-2004).

The HVRF will include two refuelling bays. Vehicle refuelling will occur over a concrete hardstand with roll-over bunds (connected to the oily water collection and treatment system) via a fuel arm as per AS 1940-2004.

A concrete hardstand will be installed under all areas where there is potential for hydrocarbon spills (including road tanker unloading pads, unloading pump, dispensing pump and heavy vehicle refuelling bays) to direct water to the oily water collection and treatment system.

Concrete hardstands will be graded such that water will be directed into a drive-in collection sump. Sumps are designed to be drive-in to allow removal of sediments that settle in the collection sump. The oily water will be transferred to the Oily Water Separator onsite.

New WWTP

New sewage treatment facilities are proposed to replace one old existing facility at the Processing Area. The replacement systems will be BioMAX C40K Wastewater Treatment Plants, each with a design capacity of up to 40 m³/day, designed to treat sewage to achieve treated effluent in six (6) 5.2 m diameter x 2.5 m high concrete tank modules. The new systems will be comprised of an anaerobic chamber, aerobic chamber, clarification chamber, disinfection chamber and pump out chamber.

The plant will have an inbuilt emergency storage of approximately two days at normal flow to ensure that any problem can be rectified before overflow occurs.Treated effluent will be discharged to the environment via existing licensed drainage lines. Table 5 shows the manufacture specification for the WWTP effluent water quality.

Table 5: WWTP manufactures specification – BioMAX C40K.

Parameter	Average effluent quality
5 Day Biochemical Oxygen Demand (BOD5)	< 20 mg/L
Suspended solids (SS)	< 30 mg/L
Faecal coliform organisms (*E. coli*)	< 10 cfu/100mL
pH	6.5 – 8.5
Total Phosphorus	< 2 mg/L
Total Nitrogen	< 10 mg/L

4.3 Infrastructure

The Greater Tom Price Iron Ore Mine facility infrastructure, as it relates to Categories 5, 12, 54 and 73 activities, is detailed in Table 4 and with reference to the Site Plan (attached in the Works Approval).Table 6 lists infrastructure associated with each prescribed premises category.

Table 6: Greater Tom Price Categories 5, 12, 54 and 73 infrastructure

	Infrastructure
	Prescribed Activity Category 5
Western Turner Syncline Stage 2 (WTS2) Processing Facility	
1	Run-of-Mine (ROM) Pad
2	ROM bin
3	Two apron feeders
4	Vibrating grizzly
5	Primary gyrator crusher
6	Concreted hardstand under and around new processing facility
7	Surface water run-off collection sump
8	Oil-water collection and treatment system
9	Transfer conveyor – including skirts or covers and dust suppression sprays
10	Overland conveyor (OLC) with a permanent cover
11	OLC loading points
12	Transfer station at WTS1 - including a surge bin and apron feeder
	Prescribed Activity Category 12
Mobile crushing and screening facility (amendment of prescribed premises boundary)	
1	Jaw Crusher
2	Heavy Duty Screen
	Prescribed Activity Category 54
Replacement of the existing waste water treatment facilities at the Tom Price mine	
1	One BioMAX C40K Waste Water Treatment Plants
	Prescribed Activity Category 73
Heavy Vehicle Refuelling Facility (HVRF)	
1	Three 200,000 L fuel storage tanks

	Infrastructure
2	Road train unloading
3	Heavy vehicle refuelling bays with fuel arms and associated bunds as per Australian Standard 1940-2004 (AS 1940-2004):
4	Light vehicle refuelling
5	Storage for engine oil, hydraulic oil, coolant and grease at each of the refuel bays - constructed to as per AS 1940-2004
6	Spillage drive-in collection sump
7	Concrete hardstand at road tanker unloading pads, unloading pump, dispensing pump and heavy vehicle refuelling bays
8	Oily water collection and treatment system – Ultraspin (HD25) hydro-cyclone

4.4 Exclusions to the Premises

Clearing of native vegetation is not assessed under this works approval.

5. Legislative context

Table 7 summarises approvals relevant to the assessment.

Table 7: Relevant approvals

Legislation	Number	Approval
Environment Protection and Biodiversity Conservation Act 1999 (Cth)	*CPS 5795*	*Allows for the clearing of up to 824 hectares (ha) on ML4SA (Tom Price), General Purpose Lease 3SA, Miscellaneous Licences L47/209 and L47/136 for the purposes of 'mineral exploration, mineral production and associated activities'.*
	CPS 4915	*Allows for the clearing of up to 180 ha on ML4SA (Western Turner Syncline), Miscellaneous Licenses L47/161 and L47/668 for the purposes of 'mineral exploration, hydrogeological and geotechnical investigations, a construction camp, communications, pipeline and associated activities'.*
Mining Act 1978	*Reg ID 86599* *Under assessment*	*Syncline Project Mining Proposal amalgamates the previously approved activities via Revision 1 and Revision 2 as well as new activities, including infrastructure on additional tenements G47/1271, L47/745, L47/824, L47/826 and L47/858.*
Rights in Water and Irrigation Act 1914	*GWL 167297*	*Annual water entitlement – 11GL*
	GWL 107418	*Annual water entitlement – 11GL*
Iron Ore (Hamersley Range) Agreement Act 1963	*ML4SA*	*ML4SA granted in 1965*
Dangerous Goods Safety Act 2004	*DGS002673* *DGS006583* *ETS002250*	*Hydrocarbons on site are managed via the following Dangerous Goods Licences: DGS002673 - DGS006583 - ETS002250*
Part IV of the EP Act (WA)	*Statement Number 1031*	*The proposal is to develop above and below water table iron ore deposits and associated infrastructure at Western Turner Syncline, approximately 20 km west of Tom Price in the Pilbara Region.* *The Western Turner Syncline Project involves open-pit mining of iron ore deposits above and below the groundwater table and the construction and operation of associated infrastructure.* *Ministerial Statement 1031 will be the mechanism for clearing across the tenements listed; G47/1271, L47/745, L47/824, L47826 and L47/858.*

5.1 Part V of the EP Act

5.1.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (April 2019)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

5.1.2 Works approval and licence history

Table 8 summarises the works approval and licence history for the premises.

Table 8: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
L4762/1972/14	21/04/2016	- Increased design capacity for Category 5 to 40,000,000 tpa; - Inclusion of Category 12 (design capacity 10,000,000 tpa) and Licence condition L1; - Inclusion of WDL1 and WDL2 (now WTS B1 and WTS B2) and a capacity increase for existing Category 64 to 6,000 tpa (from 4,000 tpa); - Amendment to condition L27 (previously L16) to include improvement requirements IR1 – IR3 relating to the Greater Tom Price Tailings Storage Facility (TSF), the Section 6 Pit and the MOC and Beneficiation Plant WWTPs; - Removal of previous conditions 1, 2, 4, 7, 8, 9, 10, 16 – 20, 25, 37 and 38; - Updated premises maps; and - Administrative changes.
L4762/1972/14	17/10/2017	- Increased design capacity for Category 6; - Inclusion of the WTS S10 dewatering outfall discharge point; - Increased design capacity for Category 64; - Decreased design capacity for Category 73 - Reduction in the monitoring parameters of the WTS S2 discharge; - Construction and operation of the WTS B1 putrescible landfill; and - Other administrative changes.
L4762/1972/14	09/09/2019	- Amend Premises boundary to include a northern access road to connect the Western Turner Syncline mine to White Quartz Road. - Operate a mobile crushing and screening plant adjacent to the access road (No changes to Category 12 capacity).
W6353/2020/1	18/06/2020	This works approval

5.1.3 Compliance inspections and compliance history

The Greater Tom Price Iron Ore Mine was last inspected in April 2017. The inspection report (internal reference - A1397133) indicates that the activities and operation at the time of the visit were considered low risk.

6. Consultation

This application was advertised in the West Australian newspaper on 16 March 2020 for a comment period ending on 30 March 2020. No comments were received.

A letter inviting comment was sent to the Shire of Wiluna and the Department of Mines, Industry and Safety on 5 March 2020. No comments were received.

7. Location and siting

7.1 Residential and sensitive receptors

The distances to residential and sensitive receptors are detailed in Table 9.

Table 9: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Tom Price Town site	*Approximately 6.0 km north east of the proposed sewage treatment facilities and more than 31.0 km east of the proposed processing and fuel storage facilities.*
Hamersley Pastoral Lease	*Overlies the Premises but more than 11.7 km north of the proposed sewage treatment facilities and more than 16.2 km north east of the proposed processing and fuel storage facilities.*
Rocklea Pastoral Lease	*Overlies the Premises but more than 18.7 km north west of the proposed sewage treatment facilities and more than 5.1 km north of the proposed processing and fuel storage facilities.*

7.2 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 10. Table 10 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 10: Environmental values

Specified ecosystems	Distance from the Premises
Public Drinking Water Source Area	Paraburdoo Water Reserve (Priority 1) 1km south of the WWTP discharge point.
DBCA - Legislated Lands and Waters	The nearest Reserve; Karijini National Park is located more than 7.9 km east of the Premises (Tom Price) and more than 13.7 km east of the proposed sewage treatment facilities.

Biological component	Distance from the Premises
Threatened/Priority Flora	Priority 2 and priority 3 species located 1km south of WWTP discharge point.
Threatened/Priority Fauna	- Priority 4 (bird) and vulnerable (reptile) located 3.9km north east of WWTP discharge point; - Priority 4 (mammal) located 1.3km north west of new processing plant and fuel storage; - Priority 4 (mammal) located 1 km south east of new processing plant and fuel storage
Surface water	WWTP discharges into a minor creek The new conveyor belt will intersect numerous minor, non-perennial watercourses.

7.3 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 11.

Table 11: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Major watercourses/ waterbodies	- Processing facilities: 5.8 km from Hardey River and 8.8 km from Beasley River; - Fuel storage facilities: 5.5 km from Hardey River and 8.6 km from Beasley River; and WWTP: 6.2 km from Hardey River.	The Premises intersect the Hardey River, Seven Mile Creek, Turee Creek and Beasley River sub-catchments of the regional Ashburton River Basin (catchment area of approximately 71,360 km^2).
Groundwater	Depth to groundwater at: - WWTP : 35 metres below ground level (mbgl) - Processing Plant: 67mbgl - Fuel storage facility: 45 mbgl	*seepage / infiltration may affect groundwater quality*

7.4 Monitoring and testing

Table 12 shows the quality of the current WWTP effluent discharge at the Beneficiation Plant.

Nitrogen levels in the effluent are close or above the National Water Quality Management Strategy (NMQMS 1997).

Table 12: Beneficiation Plant wastewater discharge quality*.

	Biochemical Oxygen Demand (m/L)	Total Suspended Solids (mg/L)	pH	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	*E.coli* (cfu/100 ml)
NWQMS 1997	***20-30***	***25-40***	***-***	***20-50***	***6-12***	***10^5 - 10^6***
Q1 2018	<2	6	7.67	42.5	3.27	36
Q2 2018	4	20	7.3	**53.3**	1.34	2,300
Q3 2018	3	33	7.04	44.8	4.57	71
Q4 2018	<2	9	7.66	34.8	1.85	44
Q1 2019	<2	<5	7.35	29.7	1.69	6,500
Q2 2019	3	<5	7.64	**70.3**	7.02	<1
Q3 2019	6	24	7.77	48.2	2.02	37,000
Q4 2019	10	11	7.44	**57.3**	1.99	38,000

* WWTP discharge quality results extracted from AER 2018 and 2019

Note: values shown in red exceeded the NWQMS 1997guidelines

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further. Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017).

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 13 and 14.

Table 13. Determination of emission, pathway, receptor and Regulatory Controls – during construction

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway & receptor (impact)**					
Categories 5, 12, 54 and 73 Construction of the new Processing Facility, conveyor belt and moving crushing and screening facility	Earthworks, vehicle movements, construction of infrastructure	Noise	Closest receptor is Tom Price Town located 31 km east of the new processing facility.	Air / wind dispersion, causing amenity impacts	N/A	N/A	N/A	The Delegated Officer considers there is sufficient separation from sensitive receptors to mitigate the risk of noise impacts. Construction is for a finite period of time. The Delegated Officer also considers the *Environmental Protection (Noise) Regulations 1997* sufficient to regulate noise emissions from the premises.	None specified
		Dust	Closest receptor is Tom Price Town located 31 km east of the new processing facility; and vegetation adjacent the mine	Air / wind dispersion causing dust impacts, potential health impacts, smothering vegetation impacting photosynthesis	N/A	N/A	N/A	Dust will be managed via the requirements of the Ministerial Statement and Environmental Management Plan and standard operating procedures, including: • dust suppression will be implemented (including use of water trucks, control of vehicle movements / restricted speeds) during construction. Standard management procedures are expected to effectively mitigate the risk of dust emissions during construction. The Delegated Officer considers there is sufficient separation from sensitive receptors, and that the proposed management measures	None specified

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		Potential emissions	Potential receptors	Potential pathway & receptor (impact)					
								adequately mitigate the risk of dust impacts.	
Categories 5, 12, 54 and 73 Construction of the new Processing Facility, conveyor belt and moving crushing and screening facility	Use and storage of hydrocarbons	Spills and breach of containment causing hydrocarbon or chemical discharge to land.	Soil and vegetation adjacent to areas of spill or breach. Groundwater is 67 mbgl at the new Processing facility and 35 mbgl at the new WWTP.	Direct discharge to land and impacting soil, inhibiting vegetation growth/survival, health impacts to fauna. Infiltration to groundwater/ groundwater contamination	N/A	N/A	N/A	The applicant has committed to comply with Australian Standard AS 1940 *The Storage and Handling of Flammable and Combustible Liquids.* The applicant has committed to: • Providing spill response equipment The Delegated Officer considers there is sufficient separation from sensitive receptors, and that the proposed management measures adequately mitigate the risk of spills and breach of containment, and considers that additional regulatory controls are not required to mitigate this risk.	None specified

Table 14. Determination of emission, pathway, receptor and Regulatory Controls – during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway & receptor (impact)**					
Category 5 Commissioning and operation of the Ore Processing Facility	Operation of processing facility	Dust	Closest receptor is Tom Price Town located 31 km east of the new processing facility; and vegetation adjacent the mine	Air / wind dispersion causing dust impacts, potential health impacts, smothering vegetation impacting photosynthesis	Minimal onsite impact **Slight**	Not likely to occur in most circumstances **Unlikely**	**Low** Acceptable, not subject to controls	The applicant has committed to the following management measures: • Dust extraction system will be installed at the crusher with dust extraction points located at the ROM bin apron feeder, the vibrating grizzly apron feeder and the primary crusher discharge chute; • Dust suppression sprays will be installed at the primary crusher discharge chute; • Load points of each conveyor include skirts or covers and dust suppression sprays; • The OLC includes a permanent cover; • Transfer points are enclosed to reduce dust emissions; and • Regular inspection and maintenance will be undertaken at processing facilities to collect and remove material that may present a potential dust risk. • Monitoring of in-situ water content in the ore product will be undertaken to inform the application of water for dust suppression. • Monitoring of dust levels to guide the management of dust levels. • Appropriate design, management, monitoring, inspection and maintenance of processing facilities to mitigate the risk of dust during operations.	None

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway & receptor (impact)**					
								The Delegated Officer considers there is sufficient separation from sensitive receptors, and that the proposed management measures adequately mitigate the risk of dust impacts, and considers that additional regulatory controls are not required to mitigate this risk.	
Category 5 Commissioning and operation of the Ore Processing Facility	Operation of processing facility	Noise	Closest receptor is Tom Price Town located 31 km east of the new processing facility; and vegetation adjacent the mine	Air / wind dispersion causing amenity impacts	Minimal onsite impact **Slight**	Not likely to occur in most circumstances **Unlikely**	**Low** Acceptable, not subject to controls	The applicant has committed to apply the *Environmental Protection (Noise) Regulations 1997.* Standard operating procedures are expected to effectively mitigate the risk of noise during operations. Specific controls are not proposed. The Delegated Officer notes that there is sufficient separation from sensitive receptors and as such, additional regulatory controls are not required to mitigate this risk.	None
		Contaminated stormwater (hydrocarbons and sediment)	Soil and surface water receptors - minor creeks to the north and south of the OPF. Vertical distance to local groundwater is 67 mbgl.	Direct discharge to land causing contamination of soil and impacts to surface water	Low level onsite impact **Minor**	Could occur at some time **Possible**	**Medium** Subject to controls	The applicant has committed to the following management measures: • Surface water management structures (such as drains) will be installed to direct surface water flows around the facilities; • Concrete hardstand will be installed under the processing facilities; • Potentially contaminated surface water will be retained on site (directed to the oily water collection and treatment system) and treated to remove hydrocarbons; and • Potentially sediment laden surface water will be retained on site (directed to sedimentation ponds) to allow for sedimentation.	<u>Works approval controls:</u> - Requirement to direct potentially contaminated stormwater to surface water management structures; - Submission of compliance documents

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		Potential emissions	Potential receptors	Potential pathway & receptor (impact)					
								Appropriate design, management, inspection and maintenance of processing facilities is expected to mitigate the risk of release of contaminated surface water run-off to the environment during operations. In accordance with the Department's Guidance Statement: Risk Assessments (DER, 2017a), as these controls lower the risk of impacts, they will be conditioned in the works approval and licence.	
Category 5 Commissioning and operation of the Ore Processing Facility	Operation of processing facility	Hydrocarbon spill	Soil and vegetation adjacent to areas of spill or breach.	Direct discharge to land and impacting soil, inhibiting vegetation growth/survival, health impacts to fauna,	Low level onsite impact **Minor**	Could occur at some time **Possible**	**Medium** Subject to controls	The applicant has committed to the following management measures to mitigate hydrocarbon spills: - Concrete hardstand will be installed under the processing facilities; - Potentially contaminated surface water will be retained on site (directed to the oily water collection and treatment system) and treated to remove hydrocarbons; - Provision of management structures (bunding /secondary containment) at all hydrocarbon storage facilities to ensure any spills are contained; and - Provision of spill response. Appropriate design, management, inspection and maintenance of fuel storage and use at the processing facilities is expected to mitigate the risk of a hydrocarbon spill during operations. Groundwater contamination with potential impacts to groundwater quality is unlikely, since the vertical distance to the groundwater is 67 mbgl, any hydrocarbon spills are not expected to seep to groundwater.	<u>Works approval controls:</u> - Requirement to construct hardstand, bunding and direct potentially contaminated stormwater to surface water management structures; - Submission of compliance documents .
			Seepage to groundwater. Groundwater is found 67 mbgl	infiltration to groundwater/ groundwater quality deterioration					

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		Potential emissions	Potential receptors	Potential pathway & receptor (impact)					
Category 54 Commissioning and operation of waste water treatment plant	Operation of sewage treatment facilities	Odour	No residences or other sensitive receptors in proximity. Nearest sensitive land users are 22.5 km away	Air / wind dispersion	Minimal onsite impact **Slight**	Could occur at some time **Possible**	**Low** Acceptable, not subject to controls	The applicant has committed to the following management measures: - Representative effluent discharge samples will be collected and analysed quarterly, - Samples will be assessed and compared against the National Water Quality Management Strategy (NWQMS), *Australian Guidelines for Sewerage Systems – Effluent Management* (1997) and all recorded monitoring data; and - Inspection and maintenance will be undertaken. Odour emissions should be negligible for a properly functioning sewage treatment plant. Appropriate design, management, inspection and maintenance of sewage treatment facilities is expected to mitigate the risk of odour emissions during operations.	None
Category 54 Commissioning and operation of waste water treatment plant	Sewage pipes and holding tanks	Rupture of pipes / overtopping of holding tanks resulting in sewage discharge to land	Vegetation adjacent to discharge area	Direct discharge. Soil contamination inhibiting vegetation growth and survival	Low level onsite impact **Minor**	Not likely to occur in most circumstances **Unlikely**	**Medium** Subject to controls	The applicant commitments: - Representative effluent discharge samples will be collected and analysed quarterly, - Samples will be assessed and compared against the National Water Quality Management Strategy (NWQMS), *Australian Guidelines for*	<u>Works approval controls:</u> - Submission of compliance document -effluent monitoring

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		Potential emissions	Potential receptors	Potential pathway & receptor (impact)					
	Single point discharge of treated effluent to the new WWTP at Processing Plant area	Treated effluent to land (potentially elevated in Total Nitrogen, Total Phosphorus, *E.coli*, TSS, BOD)	Native flora and fauna	Direct discharge. Impacts to the health of native flora and fauna	Low level onsite impact **Minor**	Could occur at some time **Possible**	**Medium** Subject to controls	*Sewerage Systems – Effluent Management* (1997) and all recorded monitoring data; and - Inspection and maintenance will be undertaken. The estimated depth to groundwater at the accommodation village and irrigation areas is 35 mbgl; hence infiltration and contamination of groundwater is not expected.	
Category 73 Operation of fuel storage facilities	Fuel storage	Breach of containment causing discharge to land of the content of the tanks	Soil and groundwater underneath the premises.	Direct discharge. Contamination of the soil and groundwater underneath	Mid-level at a local scale **Moderate**	Could occur at some time **Possible**	**Medium** Subject to controls	Hydrocarbons will be managed via relevant legislation (including *Australian Standard AS 1940-2004: Storage and handling of flammable and combustible liquids)* and standard operating procedures including: - Proposed HVRF will be located where the vertical distance between the facility and the groundwater level is more than 50 m; - Proposed HVRF will be located more than 5 km from the nearest surface water; - Fuel storage tanks will be designed and constructed to AS 1940-2004: *The storage and handling of flammable and combustible liquids*; - Fuel storage tanks will be above ground; - Fuel storage tanks will be self-bunded; - Concrete hardstand will be installed under fuel storage and refuelling facilities where there is potential for hydrocarbon spills; - Potentially contaminated surface water will be collected in sumps and	<u>Works approval controls:</u> - Submission of compliance document
		Refueling	Soil and groundwater underneath the premises.	Direct discharge. Contamination of the soil and groundwater underneath	Low level onsite impact **Minor**	Could occur at some time **Possible**	**Medium** Subject to controls		

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning	Regulatory controls (Refer to conditions of the granted works approval)
Source/Activities		Potential emissions	Potential receptors	Potential pathway & receptor (impact)					
								directed to the oily water collection and treatment system; - Management structures (bunding / secondary containment) will be installed at all fuel storage facilities to ensure any spills are contained; and - Spill response will be provided.	

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 15 below.

Table 15: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 16 below.

Table 16: Risk criteria table

Likelihood		**Consequence**		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		**The following criteria has been used to determine the consequences of a Risk Event occurring:**		
			Environment	**Public health* and amenity (such as air and water quality, noise, and odour)**
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*

"onsite**"** means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment table 17 below:

Table 17: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

9. Determination of Works Approval conditions

The conditions in the issued Works Approval in Attachment 1 have been determined in accordance with the Department's Guidance Statement: Setting Conditions. Table 18 provides a summary of the conditions to be applied to this works approval.

Table 18: Summary of conditions to be applied

Condition Ref	Grounds
Construction phase	
Infrastructure and Equipment 1	These conditions require that infrastructure is constructed and designed as per the supporting documents and that groundwater monitoring bores are installed. These conditions are valid, risk-based and consistent with the EP Act.
Compliance reporting 2, 3 and 4	These conditions require a compliance report to be provided following construction completion of items in condition 1. These conditions are valid, risk-based and consistent with the EP Act.

Condition Ref	Grounds
Environmental commissioning phase	
Environmental commissioning requirements 5, 6,7 and 8	These conditions allow commissioning of the infrastructures below - OPF: 3 months; - Mobile crusher plant: 1 month; and - WWTP: 4 months Provided that the compliance documentation has been received. These conditions are valid, risk-based and consistent with the EP Act.
Reporting during environmental commissioning 9 and 10	These conditions require that a commissioning report be provided that includes environmental performance of the infrastructure. These conditions are valid, risk-based and consistent with the EP Act.
Time limited operations phase	
Commencement and duration 11 and 12	These conditions require that compliance and commissioning reports have been received prior to time limited operations commencing and sets operational requirements. Environmental compliance is a valid, risk-based condition to ensure appropriate linkage between the licence and the EP Act
Time limited operations requirements and emission limits 13	These conditions require data collection on aspects of the project. These conditions are valid, risk-based and consistent with the EP Act.
Monitoring during time limited operations 14, 15, 16 and 17	This condition requires emissions monitoring and ambient groundwater monitoring during time limited operations. These conditions are valid, risk-based and consistent with the EP Act.
Compliance reporting 18 and 19	These conditions require a time limited operations report be provided with a summary of the performance of the infrastructure and details on product produced, tailings produced, tailings water content, water balance etc. These conditions are valid, risk-based and consistent with the EP Act.
Records and reporting general	
Records and reporting (general) 20, 21 and 22	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

The Department notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, the Department may initiate amendments to the works approvals under the EP Act.

Applicant comments

The applicant was provided with the draft works approval and draft decision report on 4 June 2020. The Applicant provided comments on 10 June 2020 which are summarised, along with DWER's response, in Appendix 2.

Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this decision report (listed in Appendix 1).

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

The Department notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, the Department may initiate amendments to the approval under the EP Act.

Alana Kidd
MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES

Delegated Officer
Under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

Document title	In text reference (where applicable)	Availability
Application - Works Approval – Greater Tom Price Iron Ore Mine – Categories 5, 12, 54 and 73		DWER reference: DWERDT229711
Application - Works Approval - Greater Tom Price Iron Ore Mine - Categories 5, 12, 54 and 73 Applicant response to Request For Information		DWER reference: A1890347
Works Approval - Greater Tom Price Iron Ore Mine - Categories 5, 12, 54 and 73 Applicant response to DRAFT Works approval and DRAFT decision report		DWER reference: A1902007
Guidance Statement: Regulatory principles. Department of Environment Regulation, Perth. July 2015	DER 2015a	Accessed at www.dwer.wa.gov.au
Guidance Statement: Setting conditions. Department of Environment Regulation, Perth. October 2015	DER 2015b	
Guidance Statement: Licence duration. Department of Environment Regulation, Perth. August 2016	DER 2016a	
Guidance Statement: Risk Assessments. Department of Environment Regulation, Perth. November 2016	DER 2016b	
Guidance Statement: Decision Making. Department of Environment Regulation, Perth. November 2016.	DER 2016c	
Industry Regulation Guide to Licensing. Department of Water and Environmental Regulation, June 2019.	DWER 2019	
National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems, Effluent Management, 1997	NWQMS 1997	Accessed at https://www.waterquality.gov.au/sites/default/files/documents/effluent-management.pdf

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder comment	DWER response
N/A	Change number of waste water treatment plants (WWTP) from two to one.	*Amended to reflect just one WWTP*
N/A	Change in discharge volume from 80m^3/ day to 40m^3/days	*Amended to reflect the discharge of just one WWTP*
N/A	Include tenements G47/1258 and L47/209 to the tenement list for the conveyor.	*Amended*
N/A	Remove Jaw Crusher and Heavy Duty Screen model	*Amended*
2	Remove word equipment	*Amended*
6	The Licensee notes construction and commissioning Stages 1-3 of processing facilities will occur concurrently (construction verification and pre-commissioning is undertaken following construction of each part of the facilities) and therefore commissioning reports may be submitted multiple times, post the equipment 3 month commissioning time frame.	*Noted*
7	Request "limits" be replaced with "targets". Results will be assessed against NWQMS and the design criteria. This ensures commissioning is not drawn out due to solely being compared against the design criteria and still ensures compliance with Australian guidelines.	*Targets are not enforceable as it does not clearly state the outcome that must be achieved.* *Limit values have been amended to reflect the upper limit of NWQMS*.
4, 7, 11, 13 and 21	Administrative errors	*Amended*

Attachment 1: Issued Works approval W6353/2020/1