



FI Joint Venture Pty. Ltd.
Yogi Magnetite Project
Environmental Management and Rehabilitation Plan for the
Pipeline Corridor

April 2020

Document control

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	S Isbister R Lupton	H Morgan		M Brook		25/10/2019
B	S Isbister R Lupton K Frehill	H Morgan		M Brook		18/03/2020

Summary

The context and purpose of this Environmental Management and Rehabilitation Plan (EMRP) is summarised in the following table.

Item	Details
Title of Proposal	Yogi Magnetite Mine Project
Proponent name	FI Joint Venture Pty Ltd
Purpose of the EMRP	<p>The purpose of this EMRP is to address the requirements of Environmental Scoping Document (ESD) items: 19, 61, 64, 83, and 104 (further detail is provided in Table 1-2).</p> <p>The EMRP will also support the approval given under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act), EPBC 2017-8124, if an approval is granted.</p> <p>This EMRP relates specifically to the pipeline development envelope (PDE) which extends from the Yogi Magnetite Mine site to Geraldton.</p>
Environmental factors (and objectives) addressed in this EMRP	<p>Key environmental factors and associated EPA objectives are:</p> <ul style="list-style-type: none"> • Flora and vegetation - <i>To protect flora and vegetation so that biological diversity and ecological integrity are maintained</i> • Terrestrial fauna - <i>To protect terrestrial fauna so that biological diversity and ecological integrity are maintained</i> • Inland waters - <i>To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected</i> • Social surroundings - <i>To protect social surroundings from significant harm</i>
Key provisions in the plan	<p>Management-based provisions that align with established industry practices to avoid, minimise and restore potential environmental impacts. The provisions reflect the potential for intermittent, episodic and acute impacts posed by construction activities, as well as longer term impacts that may occur post-construction via Proposal design principles.</p> <p>Key provisions include:</p> <ul style="list-style-type: none"> • Flora and vegetation - native vegetation clearing control, topsoil and weed management, rehabilitation, and fire management • Terrestrial fauna - protection of fauna / fauna habitat • Inland waters - erosion and sediment control, hazardous materials and waste management, and site contamination management • Social surroundings - Aboriginal heritage management, pastoral lease management, construction noise management, construction dust management, complaints and notification.

Table of contents

1.	Context, scope and rationale	3
1.1	The Proposal	3
1.2	ESD requirements for EMRP	4
1.3	Rationale and approach.....	5
1.4	Limitations and assumptions of this document	10
2.	EMP provisions	12
2.1	Management systems and implementation	12
2.2	Flora and vegetation.....	14
2.3	Terrestrial fauna	20
2.4	Inland waters	24
2.5	Social surrounds.....	27
3.	Adaptive management and review of the EMRP	31
3.1	Environmental monitoring and corrective actions	31
3.2	EMRP revision	31
3.3	Audits.....	31
4.	References	32

Table index

Table 1-1 Key environmental factors and risks for the Proposal	3
Table 1-2 Proposal ESD items which relate to this EMRP	4
Table 1-3 Surveys and studies relevant to the Proposal.....	5
Table 1-4 Findings of surveys and studies relevant to the Proposal	6

1. Context, scope and rationale

1.1 The Proposal

1.1.1 Background and context

FI Joint Venture Pty Ltd (FIJV, the Proponent) proposes to establish and operate a magnetite iron ore mine approximately 250 km east-northeast of Geraldton and 15 km northeast of Yalgoo in the Mid-West region of Western Australia (WA). The Yogi Magnetite Mine project (the Proposal) also includes a slurry pipeline from the mine site to Geraldton port, a return water pipeline, and a gas supply pipeline from the Dampier to Bunbury Natural Gas Pipeline.

FIJV referred the proposal to the WA Environmental Protection Authority (EPA) under s 38 of the *Environmental Protection Act 1986* (EP Act) on 19 December 2017. On 21 February 2018, the EPA determined the proposal was to be assessed at the level of 'Public Environmental Review' (PER). An Environmental Scoping Document (ESD) was submitted to the EPA and was approved on 29 April 2019. The Environmental Review Document (ERD) was received by the EPA on 17 July 2019 (Assessment No. 2154) and is currently under assessment.

1.1.2 Location

The Yogi Magnetite Mine site is located approximately 250 km north-east of Geraldton and 15 km north-east of Yalgoo, within the Shire of Yalgoo, in the Mid- West Region of Western Australia. The proposed pipeline extends from the Yogi Magnetite Mine site to Geraldton port.

The pipeline development envelope (PDE) is divided into two portions (western and the eastern). The eastern portion represents approximately 80 km of the pipeline corridor, extending from the Yogi Magnetite Mine site to east of Mullewa. The eastern portion of the PDE is approximately 500 meters (m) wide and covers approximately 4,655 hectares (ha). The remainder of the PDE is referred to as the western portion, and comprises mostly agricultural and pastoral land uses.

1.1.3 Key environmental factors

The development of the ERD for the Proposal assesses the relevant environmental factors in accordance with the approach in the EPA's Statement of Environmental Principles, Factors and Objective and the EPA's Environmental Factor Guidelines and Environmental Factor Technical Guidance.

Table 1-1 outlines the key environmental factors and risk, as identified in the ESD and ERD.

Table 1-1 Key environmental factors and risks for the Proposal

Environmental Factor	Key risks
Flora and vegetation	<ul style="list-style-type: none">- Clearing of up to 200 ha of native vegetation (approximately 178 ha of clearing will occur within the eastern portion of the PDE, and up to 22 ha of clearing will occur within the western portion of the PDE)- Indirect impacts from fire, spread of weeds and dieback
Terrestrial fauna	<ul style="list-style-type: none">- Loss of fauna habitat as a result of direct mortality of individuals, forced relocation of fauna individuals, and a reduction in foraging or breeding habitat- Displacement and death of fauna individuals- Habitat fragmentation- Degradation of fauna habitat resulting from the introduction and spread of weeds

Environmental Factor	Key risks
	<ul style="list-style-type: none"> - Altered fire regime leading to temporary destruction of fauna habitat, reduced food sources, increase in predation, or lasting degradation due to increased intensity and/or frequency of fire events
Inland waters	<ul style="list-style-type: none"> - Soil erosion from cleared areas causing sediment discharge to downstream receptors - Clearing and earthworks at waterway crossings causing erosion to bed and banks and sediment discharge to downstream receptors - Excavation of existing site contamination causing contamination of surface water or groundwater quality - Spills, leaks or discharges of hazardous materials or wastes causing contamination of surface water or groundwater quality.
Social surroundings	<ul style="list-style-type: none"> - Loss/disturbance to registered Aboriginal heritage places - Excavation of unknown subsurface archaeological material - Impact to Native Title, including limiting access to areas for traditional purposes (camping and ceremonies), disassociation with local customs and culture, changes in amenity, and potential lack of provision of appropriate compensation - Negative impacts to pastoral lease operations and any tourism activities in the PDE - Impacts to amenity values (including visual landscape, visual aesthetics values and recreational tourism) associated with the PDE

1.1.4 Construction works

Three pipelines will be installed within the PDE: a slurry pipeline to transport slurry from the ore processing plant to Geraldton Port; a return water pipeline from Geraldton Port; and a gas supply connection from the Dampier Bunbury Natural Gas Pipeline.

Construction of the pipeline will include the following activities:

- Clearing of native vegetation along the pipeline route, and to establish access tracks, and laydown areas
- Excavation and trenching
- Laying of new pipe works and supporting structures

1.1.5 Construction timing

Construction is anticipated to commence in Q1 2021, once all FIJV and regulatory approvals are secured. These schedules may change, depending on external approvals, internal funding approvals, business priorities and market conditions.

1.2 ESD requirements for EMRP

The purpose of this EMRP is to address the requirements of ESD items relating to environmental management and rehabilitation, as presented in Table 1-2.

Table 1-2 Proposal ESD items which relate to this EMRP

ESD Item	Description	Relevant EPA factor	Section addressed
19	<p>An environmental management and rehabilitation plan will be prepared for the pipeline corridor to address significant residual impacts to flora and vegetation. The following will be addressed in the plan:</p> <p>a) Invasive species control - control of weeds, in particular through construction of infrastructure,</p>	Flora and vegetation	2.2

ESD Item	Description	Relevant EPA factor	Section addressed
	transport and/or entry and exit points, riparian and GDE areas, vegetation units considered to have high local significance (e.g. rare units, habitat for conservation significant species) and in areas identified as in 'Excellent condition'		
	b) Management of offset (if applicable)		
61	An environmental management plan will be provided to address significant residual impacts to terrestrial fauna. The plan will describe management measures and monitoring to be undertaken (in terms of the mitigation hierarchy) to achieve predicted outcomes. Measures will be technically and practically feasible.	Terrestrial fauna	2.3
64	An environmental management and rehabilitation plan will be provided for the pipeline corridor.	Terrestrial fauna	2.2 and 2.3
83	A preliminary erosion and sediment control plan will be prepared for construction of the pipelines.	Inland waters	2.4
104	An environmental management plan will be provided that describes the proposed management, and monitoring methods to be implemented to mitigate potential impacts to social surrounds.	Social surrounds	2.5

1.3 Rationale and approach

1.3.1 Survey and study findings

Table 1-3 presents the studies that have been undertaken for the Proposal, which have informed the rationale and approach for this EMRP.

The outcomes of these studies are summarised in Table 1-3 and the key findings for each environmental factor is discussed in Table 1-4.

Table 1-3 Surveys and studies relevant to the Proposal

Environmental factor	Studies	Author / year
Flora and vegetation	Yogi Magnetite Project, Pipeline Flora and Fauna Assessment	GHD 2019b; 2020a and 2020b
Terrestrial fauna		
Inland waters	Yogi Magnetite Project, Surface water assessment and Yogi Magnetite Project, Groundwater assessment	GHD 2019c and 2109d
Social surrounds	Due diligence risk assessment advice for a mine proposal at Yalgoo and an infrastructure corridor between Yalgoo and Geraldton Western Australia Report of an Aboriginal Heritage survey for the Yogi Magnetite Project in the Shire of Yalgoo, Western Australia	Brad Goode & Associates Pty Ltd 2019a and 2019b

Table 1-4 Findings of surveys and studies relevant to the Proposal

Environmental factor	Findings	
	MDE	PDE
Flora and vegetation	<ul style="list-style-type: none"> • One Priority Ecological Community (Yalgoo (Gnows Nest/Wolla Wolla and Woolgah-Wadgingarra) vegetation complexes (banded ironstone formation)), listed as Priority 1 by DBCA intersects the MDE. • Nine vegetation types as well as cleared areas were identified and described for the MDE. • Vegetation condition rated from Excellent to Very Good, with cleared areas (i.e. Yalgoo-Mt Magnet Road) • Three DBCA Priority-listed flora species were recorded within the MDE during the GHD field survey, <i>Acacia subsessilis</i> (Priority 3), <i>A. speckii</i> (Priority 4) and <i>Dodonea amplisemina</i> (Priority 4). • Nine introduced flora taxa were recorded in the MDE. Of the introduced taxa, none are listed as Declared Pests under the <i>Biosecurity and Management Act 2007</i> (BAM Act) and/or as a Weeds of National Significance (GHD 2019b). 	<ul style="list-style-type: none"> • Eastern portion of the PDE intersects the Priority 1 listed PEC (Wagga Wagga and Yalgoo calcrete groundwater assemblage type on Yalgoo and Moore paleodrainage on Wagga Wagga and Bunnawarra Stations). • The western portion of the PDE does not intersect any wetlands (RAMSAR or of National importance, DBCA managed lands, ESAs, TECs/PECs. Nine 'avoidance areas' have been identified based on the prevalence of conservation significant flora and fauna and the priority status within certain areas of the western PDE. • Twenty-one vegetation types as well as cleared areas were identified and described for the eastern portion of the PDE. The majority of the western portion of the PDE is cleared and does not support native vegetation. • Vegetation condition within the eastern portion of the PDE was rated from Excellent to Very Good with cleared areas not rated. • Three DBCA Priority-listed flora species were recorded during the GHD field survey, <i>Philotheca nutans</i> (Priority 1), <i>Dicrastylis linearifolia</i> (Priority 3) and <i>Acacia speckii</i> (Priority 4). • No Declared Pest plants (as listed under the BAM Act) or Weeds of National Significance were recorded during the survey. One environmental weeds, <i>*Mesembryanthemum nodiflorum</i> (Slender Iceplant) was recorded growing near a track south of Yalgoo town site (GHD 2019b).
Terrestrial fauna	<ul style="list-style-type: none"> • Six broad habitat types were identified in the MDE: Banded Ironstone Formation (BIF) Ridgelines, Riparian/Creek line, Flood Plain, Chenopod Plain, Mixed Acacia Plain, and Granitic formations. • Habitat values for the six habitat types are all considered moderate to high value. • The mine development area forms part of a large continuous tract of habitat which retains high connectivity to the habitats directly adjacent. • A total of 153 vertebrate fauna species, including 27 mammals, 83 birds, 39 reptiles and four amphibian species within the MDE. 	<ul style="list-style-type: none"> • The western portion of the PDE is substantially cleared, also intersecting several pastoral or agriculture properties, it was assessed there does not exist any suitable fauna habitat of any value within this portion of the PDE. • In the eastern portion of the PDE eight distinct habitat types were identified: Low outcrops (sometimes granite or quartz), Drainage line, Mallee over mixed shrubland on sandplain, Mixed shrubland on sandplain, Open Mulga woodland/shrubland on Clayey Soils, Claypan, Stoney plain and Acacia shrubland over shallow soils over granite. • Habitat values for the eight types are all considered high to moderate value, with the exception of Stony Plain and Acacia shrubland over shallow soils over granite.

Environmental factor	Findings	
	MDE	PDE
	<ul style="list-style-type: none"> Only two species of conservation significance were recorded within the MDE, the Western Spiny-tailed Skink (<i>Egernina stokesii badia</i>) and Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>). The Western Spiny-tailed Skink was recorded in the BIF Ridgeline and Granitic formations fauna habitats and the Long-tailed Dunnart was recorded in the Mixed Acacia Plain fauna habitat (GHD 2019b). 	<ul style="list-style-type: none"> A total of 68 fauna species were recorded from the PDE, including 53 birds, nine mammals and six reptiles. Of these five were introduced fauna species. Five species of conservation significance were identified as likely within the eastern portion of the PDE: Malleefowl (<i>Leipoa ocellata</i>); Peregrine Falcon (<i>Falco peregrinus</i>); Gilled Slender Bluetongue (<i>Cyclodomorphous branchialis</i>); and Western Spiny-tailed Skink (<i>Egernia stokesii</i> subsp. <i>badia</i>) and Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>) (GHD 2019b). Three old disused Malleefowl mounds were recorded in the eastern portion of the PDE.
Inland waters	<ul style="list-style-type: none"> The proposed mine site lies within the catchment of the Salt River, which originates in salt flats south of the mining town of Mt Magnet, about 120 km east of the proposed mine site. The mine site is intersected by two non-perennial significant streams that intersect the MDE. These streams are the Western Primary Watercourse (WPW) which traverses the western side of the envelope, and the Eastern Primary Watercourse (EPW) along the eastern side of the envelope. These watercourses divide the mine site into two distinct catchment areas. In the mine pit the groundwater levels were generally found to be around 20 m bgl, occurring at a reported elevation of approximately 355-365 m Australian Height Datum. Groundwater is generally flowing in the southern direction, discharging to the low ground present along the current drainage line of the Salt River There are two main aquifers identified within the MDE, this includes the palaeovalley aquifer, which is largely an alluvial aquifer present within existing and paleo-drainage areas. There are no wetlands or Groundwater Dependent Ecosystems within or in proximity to the MDE (GHD 2019c) 	<ul style="list-style-type: none"> 19 watercourse crossing will be required over the ~250 km pipeline route. All watercourses identified are non-perennial (i.e. ephemeral) (GHD 2019c).
Social surrounds	<ul style="list-style-type: none"> The MDE is located in the Yalgoo region, within the Shire of Yalgoo. 	<ul style="list-style-type: none"> The PDE includes several Local Government Areas: Shire of Yalgoo, City of Greater Geraldton, Shire of Murchison, and Shire of Chapman Valley.

Environmental factor	Findings	
	MDE	PDE
	<ul style="list-style-type: none"> • The MDE lies within the Widi Mod Native Title Claim (NNTT No. 2661). • A search of the DPLH Aboriginal Sites and Places register shows there are no Registered Aboriginal Sites within the MDE (Brad Goode & Associates 2019b). However there are two Aboriginal 'Other Heritage Places', one of which is also partially within the PDE. The two 'Other Heritage Places' are not within the current footprint for mining or its associated infrastructure. 	<ul style="list-style-type: none"> • The PDE lies within the Widi Mod Native Title Claim (NNTT No. 2661) and covers the Mullewa Wadjari Community, the Wajarri Yamatji and the Southern Yamatji. Land. • There are eight Registered Aboriginal heritage sites within the PDE (Brad Goode & Associates 2019a). There are 24 'Other heritage Places' on the Aboriginal Sites and Places register within the PDE (Brad Goode & Associates 2019b).

1.3.2 Key assumption and uncertainties

Biological survey validity

The reconnaissance flora and vegetation survey undertaken by GHD (2019b) reported nil to minor limitations in either desktop or field components, and does not pose any substantial uncertainty with respect to this EMRP. The reconnaissance surveys were undertaken in August and October of 2018, and are considered to be valid for the purposes of this EMRP.

However, while the outcomes of the survey are considered sufficient for the purpose of the assessment, native vegetation within the western portion of the PDE was not surveyed and may be impacted by the Proposal. The final pipeline route will be confirmed based on a further targeted surveys to be completed prior to clearing.

The targeted survey will be undertaken of all native vegetation within the PDE with the potential to be impacted (both eastern and western portions where applicable).

Surface water assessment limitations

The surface water assessment undertaken by GHD (2019c) reported the assessment was based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of the assessment were constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in the assessment. Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of the assessment.

Groundwater assessment limitations

The groundwater assessment report undertaken by GHD (2019d) advises the report is to be read in conjunction with the assumptions and qualifications contained within the report.

The following assumptions are detailed in relation to the modelling assessment:

- The presented conceptual model and its parameterisation is considered valid for the scale of assessment
- Mean annual rainfall and evaporation are considered representative for the modelled period (inter-annual variations are neglected); both rainfall and evapotranspiration are uniform within recharge and evapotranspiration zones (no intra-zonal variability)
- Large rainfall events do not have a lasting effect on the groundwater system
- The 30 m DEM is sufficient representation of ground surface for the regional-scale model
- Homogeneous bulk hydraulic properties are applied for the major aquifer units considered in this conceptual and numerical model (despite intricacies associated with fractured rock formations)
- Groundwater flow at a regional scale can be approximated with porous flow characteristics
- The mining plan is based on uniform progressive deepening of the mining pit over its pitshell footprint at a rate of 6 m per 6 months of mining, to maximum mining depth of 125 m AHD. The varying surface of the final pit base is honoured in this assessment (ranging between 125 to 200 m AHD).

Aboriginal heritage limitations

The due diligence risk assessment undertaken by Brad Goode & Associates (2019a) stipulates that all information within the report is believed to be accurate at the time of the report development.

1.3.3 Management approach

The management approach for this EMRP adopts a risk-based approach to identify and prioritise management provisions, based on:

- Environmental values identified in Sections 2.2 to 2.5
- Available scientific information as provided in the Proposal ERD
- Consideration of uncertainties as stated in Section 1.3.2.

This EMRP incorporates comments received from the Department of Biodiversity, Conservation and Attractions (DBCA) on the Proposal ERD.

The management approach in this EMRP is conservative, with the view of managing impacts throughout construction and operations/maintenance phases. Minimal impacts are expected to result from operation of the pipeline. The EMRP adopts an environmental management hierarchy in the prioritisation of management provisions:

- Avoidance: measures taken to avoid impact
- Minimisation: measures taken to reduce the duration, intensity and/or extent of impact
- Restoration: measures taken to restore previously existing conditions.

1.3.4 Rationale for choice of provisions

This EMRP adopts management-based provisions that align with established industry practices for avoidance, minimisation and restoration of environmental impacts for mining proposals.

The provisions reflect the potential for intermittent, episodic and acute impacts posed by construction activities (e.g. spills, dust emission, un-authorised clearing), as well as long term, chronic impacts that may occur post-construction due to operational activities (e.g. introduction and spread of weeds).

1.4 Limitations and assumptions of this document

This report has been prepared by GHD for FI Joint Venture Pty. Ltd. and may only be used and relied on by FI Joint Venture Pty. Ltd. for the purpose agreed between GHD and the FI Joint Venture Pty. Ltd. as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than FI Joint Venture Pty. Ltd. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by FI Joint Venture Pty. Ltd. and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as access and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

This EMRP provides information to assist in future revegetation within the PDE. GHD takes no responsibility for rehabilitation work carried out within the PDE, or the future quality of revegetation outcomes.

2. **EMP provisions**

2.1 Management systems and implementation

2.1.1 Roles and responsibilities

FIJV will appoint an Environmental Representative to manage the achievement of environmental criteria and investigate environmental incidences.

2.1.2 Communication

Communication during the construction phase will occur on a daily, weekly or as-needed basis with relevant staff, project managers or external stakeholders. Project communication will be subject to the requirements of the project approvals.

Key external stakeholders will include:

- DBCA
- Department of Agriculture, Water and the Environment (DAWE)
- Department of Water and Environmental Regulation (DWER)
- Pastoral leases Carlaminda Station and Wagga Wagga station
- Local Government Areas: Shire of Yalgoo, City of Greater Geraldton, Shire of Murchison, and Shire of Chapman Valley.

2.1.3 Environmental awareness, training and induction

All construction personnel and sub-contractors will undergo an induction, which includes information on the importance of protecting native vegetation and avoiding edge impacts, particularly to adjacent land owners. They will be advised of their responsibilities with regard to the EP Act, *Environment Protection and Biodiversity Conservation Act 1999*, the *Wildlife Conservation Act 1985* and *Conservation and Land Management Act 1984*, including project approval and contractual requirements. This EMRP and other management plans will form the basis of the induction.

A record of inductions will be kept by the FIJV.

Regular toolbox meetings will be used to reinforce messages on environmental protection, to relay new information, and to encourage and celebrate positive outcomes.

2.1.4 Monitoring

Daily and weekly observations of the construction site will be conducted to ensure the objectives of this EMRP are implemented and that the required management actions are in place.

2.1.5 Environmental incidences / non-compliances

Environmental incidences and non-compliances will be identified and recorded as soon as possible by the relevant responsible persons. Incidents will be mitigated or rectified where possible within 48 hours of being identified. Non-conformances will be reported to the Environmental representative within 48 hours of identification.

Any non-conformance to this EMRP is to be reported to EPA Services and investigated to determine:

- Why the non-conformance occurred

- What was the environmental harm or alteration of the environment that resulted from the non-conformance
- What changes to project activities and/or management plans is required
- Measures to prevent, control or abate the environmental harm that may have occurred.

2.2 Flora and vegetation

EPA factor / objective:			
Flora and vegetation - <i>To protect flora and vegetation so that biological diversity and ecological integrity are maintained</i>			
EMRP objective:			
To address ESD item 19			
Key environmental values MDE:			
- DBCA listed Priority 1 PEC Yalgoo (Gnows Nest/Wolla Wolla and Woolgah-Wadgingarra)			
Key environmental values PDE:			
- DBCA listed Priority 3 PEC and EPBC listed Critically Endangered TEC 'Eucalypt Woodlands of the WA Wheatbelt'			
- DBCA listed Priority-listed flora species <i>Philotheca nutans</i> (Priority 1), <i>Dicrastylis linearifolia</i> (Priority 3) and <i>Acacia speckii</i> (Priority 4)			
Key impacts and risks:			
- Clearing of up to 200 ha of native vegetation (approximately 178 ha of clearing will occur within the eastern portion of the PDE, and up to 22 ha of clearing will occur within the western portion)			
- Indirect impacts from fire, spread of weeds and dieback			
ESD item 19			
<i>"An environmental management and rehabilitation plan will be prepared for the pipeline corridor to address significant residual impacts to flora and vegetation. The following will be addressed in the plan:</i>			
<i>a) Invasive species control - control of weeds, in particular through construction of infrastructure, transport and/or entry and exit points, riparian and GDE areas, vegetation units considered to have high local significance (e.g. rare units, habitat for conservation significant species) and in areas identified as in 'Excellent condition'</i>			
<i>b) Management of offset (if applicable)"</i>			
Management actions	Management target / completion criteria	Monitoring	Reporting
CONSTRUCTION			
<u><i>Native vegetation clearing control</i></u>	Targeted flora and vegetation survey completed prior to clearing	Review detailed drawings showing vegetation retention / clearing line	Targeted flora and vegetation survey report
<ul style="list-style-type: none"> A flora and vegetation survey, targeting vegetation communities and flora species of conservation significance, will be completed prior to commencement of clearing. All native vegetation within the PDE with the potential to be impacted by the Proposal will be surveyed. The pipeline route will be modified where practicable, to avoid or minimise impact to vegetation / flora of high conservation value (i.e. PEC / TEC / threatened flora) 	Detailed design drawings limit clearing of native vegetation to the pipeline corridor and laydown areas	Clearing line inspection / approval at establishment	Clearing line inspection record
			Weekly inspection reports
			Incident reports

<ul style="list-style-type: none"> • Clearing of native vegetation will be limited to area required for safe construction and maintenance of the pipeline • The clearing line from detailed design drawings will be clearly marked on site by a surveyor. The clearing line will be checked and approved by the Environmental Supervisor (or a qualified delegate) prior to the commencement of clearing works • During the check of the clearing line, the Environmental Supervisor (or qualified delegate) will identify and clearly mark any threatened or priority flora, PEC / TEC, or threatened/priority fauna habitat to be retained • All un-authorised clearing or damage of native vegetation will be immediately reported to the Environmental Management Representative • Temporary construction areas, such as access tracks and laydown areas, will use existing cleared areas where practicable • Mature trees will be retained as far as practicable, and will not be removed for temporary construction works • Vehicles and equipment will not be driven over, or parked on, native vegetation and/or tree roots as far as is practicable • Native vegetation will be pruned with a chainsaw in preference to clearing, where possible • Cleared vegetation will be stockpiled for use in rehabilitation • Clearing within the western portion of the PDE will be avoided, where practicable, or otherwise minimised 	<p>Survey of clearing line</p> <p>No un-authorised clearing of native vegetation</p>	<p>Weekly site inspections including clearing lines and demarcation of areas to be retained/avoided</p>	
<p><u>Weed control program and topsoil management</u></p> <ul style="list-style-type: none"> • All construction plant, vehicles, tools and footwear will be inspected and cleaned down as required, prior to entry to the construction area and prior to departure from the construction area. Clean down will consist of brushing, gouging, scraping and/or water blasting to remove soil or plant material • Vehicles and heavy equipment access limited to designated roads / access tracks and cleared areas. Off-road driving prohibited. 	<p>No introduction or spread of Declared pests or WoNS within PDE</p> <p>No reduction in the condition of native vegetation adjacent disturbance areas</p>	<p>Pre-clearance weed survey undertaken as a component of the targeted flora and vegetation survey</p> <p>Biannual weed monitoring of</p>	<p>Pre-clearance survey report</p> <p>Site inspection reports</p> <p>Post-construction survey report</p>

<ul style="list-style-type: none"> • Declared Plants (if identified during the pre-clearance survey) within the construction site area will be treated according to their Control Codes and advice from Department of Primary Industries and Regional Development (DPIRD), with the aim of eradication where possible, but as a minimum to prevent movement into adjacent areas • Weeds of National Significance (WoNS) (if identified during the pre-clearance survey) and environmental weeds within the PDE, will be treated according to the weed control management outlined by Weeds Australia (http://weeds.ala.org.au/) with the aim of controlling off-site movement • Removal of key weed species via chemical (herbicide application) at least annually prior to seed set. Weed controls will be applied to rehabilitation areas, and adjacent areas of high conservation value (e.g. PEC / TEC) • All heavy plant and machinery will be inspected by the contractor prior to entry at the work site, and be confirmed to be clean and free of vegetation and soil material • Topsoil will be deemed unsuitable for rehabilitation activities if it contains, or is known to come from a source containing Declared Plants or WoNS • Topsoil and vegetative matter from weed infested areas within the PDE will be treated prior to reuse, and will not be used to revegetate areas adjacent to PEC / TEC and/or vegetation in excellent condition • All applications of herbicide will be undertaken by a qualified professional and in a manner that avoids impact to adjacent native vegetation 	<p>which are of 'excellent condition' and/or have high conservation value (e.g. PEC / TEC)</p> <p>No die-off of native vegetation due to herbicide application</p>	<p>rehabilitated areas and adjacent vegetation of high conservation value (e.g. PEC / TEC), for a minimum of three years. Monitoring will record weed species and percentage cover. Where completion criteria are consistently met, a reduction in monitoring frequency will be considered in consultation with the EPA.</p> <p>Inspection by a qualified professional at completion of the construction phase</p>	
<p><u>Rehabilitation - planning</u></p> <ul style="list-style-type: none"> • Construction schedule identifies rehabilitation windows (to allow for progressive rehabilitation) • Rehabilitation contractors engaged at least one month prior to commencement of rehabilitation works <p><u>Rehabilitation – timing</u></p>	<p>Rehabilitated landscape reflects agreed post-mining land use</p> <p>Annual rehabilitation targets achieved, including:</p> <ul style="list-style-type: none"> - Rehabilitated areas successfully 	<p>Biannual monitoring of rehabilitated areas within the PDE for a minimum of three years. Where completion criteria are consistently met, a reduction in monitoring</p>	<p>Biannual rehabilitation monitoring report which will include:</p> <ul style="list-style-type: none"> - Data collected from the monitoring event (native species present, % cover) - Photos of each quadrat monitored

<ul style="list-style-type: none"> • Rehabilitation will be undertaken progressively throughout the construction phase. Timing will be determined in consultation with revegetation/restoration practitioners and/or qualified ecologists • Rehabilitation will be completed 6 months following completion of the construction phase <p><u>Rehabilitation – collection and storage of topsoil/vegetation</u></p> <ul style="list-style-type: none"> • Cleared vegetation stockpiled for reuse in rehabilitation • Topsoil translocation will be used to revegetated cleared areas with local provenance native species • Topsoil will be progressively harvested (to a depth of approximately 50 mm) and stockpiled following clearing of native vegetation • Topsoil collection will occur in summer/autumn (during dry conditions) where practicable • Topsoil collected from weed infested areas will be stockpiled separately • Topsoil stockpiles will be approximately 2-3 m wide, and not more than 2 m tall <p><u>Rehabilitation - disturbed areas</u></p> <ul style="list-style-type: none"> • Soil structure of disturbed areas assessed to determine the level of compaction • Weed free (or treated) topsoil spread across disturbed surfaces at a thickness of approximately 50 mm • Following the replacement of topsoil, compacted soils should be cultivated (i.e. ploughing, deep ripping), exceptions may be made for sandy soils that are unlikely to be compacted by heavy machinery • Fertiliser, containing nitrogen and phosphorus, will be applied to rehabilitated surfaces at a rate determined by a revegetation/restoration practitioner. • Stockpiled vegetation will be distributed across rehabilitated surfaces to minimise weed establishment and the risk of erosion. 	<p>regenerating with local provenance native species</p> <ul style="list-style-type: none"> - Weeds are controlled such that they do not significantly impede establishment and growth of native plant species, or create an additional risk to vegetation adjacent to rehabilitated areas - Soil erosion is controlled such that it does not impact the establishment and growth of native species, or vegetation adjacent to rehabilitated areas - No adverse impact on the environmental value of vegetation adjacent rehabilitation areas 	<p>frequency will be considered in consultation with the EPA</p> <p>Monitoring data will be collected using qualitative and quantitative methods, with a permanent photo point established in each quadrat. As a minimum the following information will be collected:</p> <ul style="list-style-type: none"> - Richness / density / health of native species - Richness / density of weed species - % of bare soil - Photograph from permanent photo point - Evidence of erosion (wind/water), fire, and/or grazing 	<ul style="list-style-type: none"> - Comparison of results against previous monitoring results and completion criteria - Recommendations for weed/erosion control
<p><u>Fire management plan</u></p> <ul style="list-style-type: none"> • The site induction will include information on prevention and management of fires 	<p>No fires from construction areas spreading outside of PDE</p>	<p>Daily check of fire risk ratings and Shire of Yalgoo warnings</p>	<p>Site inspection reports</p> <p>Incident reports</p>

<ul style="list-style-type: none"> • A Hot Work Permit system will be implemented • Maintain plant and vehicles in good working order, free of build-up of debris and oil • All plant undertaking clearing activities will be fitted with firefighting equipment • Eliminate all unnecessary ignition sources from site • Maintain a neat and tidy work area with no stock piles of rubbish • Reduce amount of flammable substances temporarily stored within the PDE (such as fuel) to the minimum required. Where possible, all flammable substances should be kept off site. Where that is not practical, flammable substances (clearly identified and registered) should be kept in an area that is free of ignition sources • No burning of cleared vegetation within the PDE • Develop and maintain a fire risk assessment of construction activities • Where construction activities are deemed a moderate or high fire risk, specific fire management actions are to be implemented such as wetting work areas and having a dedicated spotter to monitor for fire ignition • Adhere to Shire of Yalgoo restrictions on machinery movement during restricted and prohibited burning periods • The Department of Fire and Emergency Services (DFES) and DBCA, are to be informed when moderate to high risk activities are planned • Develop an emergency fire response and evacuation plan, covering construction ignited fires and off-site fires that enter the construction site • Firefighting equipment will be located on site and emergency personnel will be trained in fire response • Maintain adequate access provisions for DFES / DBCA (during and post construction). Access provisions may include cross-overs, access tracks and gates 	<p>Risk assessment maintained</p> <p>Emergency response and evacuation plan maintained</p> <p>Fire access maintained</p>	<p>Weekly site inspections for fire risk</p>	<p>Notification of DFES and DBCA of moderate to high risk activities</p>
---	--	--	--

OPERATIONS / MAINTENANCE

<p><u>Rehabilitation</u></p> <ul style="list-style-type: none"> • If topsoil is stockpiled for extended periods, the material will be turned at least every 6 months, to maintain oxygen levels within the centre of the stockpiles • Rehabilitation will be maintained for the first three years (at least two summers) following establishment, including monitoring and weed control within and adjacent to rehabilitated areas, and managing erosion and access 	<p>Rehabilitated areas support local provenance native species</p> <p>Rehabilitated areas support vegetation structure similar to surrounding areas</p> <p>Rehabilitated areas are self-sustaining (require minimal ongoing maintenance)</p> <p>Rehabilitated areas achieve land use outcomes as negotiated in consultation with Native Title Groups</p>	<p>Annual monitoring of rehabilitated areas within the PDE</p> <p>Final handover inspection</p>	<p>Rehabilitation annual monitoring report which will include:</p> <ul style="list-style-type: none"> - Data collected from the monitoring event - Photos of each quadrat monitored - Comparison of results against previous monitoring results and completion criteria - Recommendations for weed/erosion control <p>Rehabilitation handover report which will include:</p> <ul style="list-style-type: none"> - A summary of monitoring results - A comparison of each quadrat against the completion criteria
<p><u>Weed management programme</u></p> <ul style="list-style-type: none"> • Continue post emergent herbicide programme, targeting vegetation units considered to have high local significance (e.g. conservation significant flora / ecological communities, and habitat likely to support conservation significant fauna), and vegetation identified as being in 'excellent condition'. 			

2.3 Terrestrial fauna

EPA factor / objective:			
Terrestrial fauna - <i>To protect terrestrial fauna so that biological diversity and ecological integrity are maintained</i>			
EMRP objective:			
To address ESD items 16 and 64			
Key environmental values MDE and PDE:			
Habitat suitable for:			
<ul style="list-style-type: none"> - Malleefowl (<i>Leipoa ocellata</i>) – habitat - Peregrine Falcon (<i>Falco peregrinus</i>) – hunting/foraging habitat only (no breeding habitat) - Gilled Slender Bluetongue (<i>Cyclodomorphus branchialis</i>) - habitat - Western Spiny-tailed Skink (<i>Egernia stokesii</i> subsp. <i>badia</i>) – habitat - Long-tailed Dunnart (<i>Sminthopsis longicaudata</i>) - habitat 			
Key impacts and risks:			
<ul style="list-style-type: none"> - Loss of fauna habitat as a result of direct mortality of individuals, forced relocation of fauna individuals, and a reduction in foraging or breeding habitat - Displacement and death of fauna individuals - Habitat fragmentation - Degradation of fauna habitat resulting from the introduction and spread of weeds - Altered fire regime leading to temporary destruction of fauna habitat, reduced food sources, increase in predation, or lasting degradation due to increased intensity and/or frequency of fire events 			
ESD item 61 and 64			
Item 61 – <i>“An environmental management plan will be provided to address significant residual impacts to terrestrial fauna. The plan will describe management measures and monitoring to be undertaken (in terms of the mitigation hierarchy) to achieve predicted outcomes. Measures will be technically and practically feasible.”</i>			
Item 64 – <i>“An environmental management and rehabilitation plan will be provided for the pipeline corridor.”</i>			
Management actions	Management target	Monitoring	Reporting
CONSTRUCTION			
<u><i>Protection of fauna habitat</i></u> <ul style="list-style-type: none"> • A fauna survey, targeting conservation significant fauna and habitats likely to support conservation significant fauna, will be completed prior to commencement of clearing. All fauna habitats within the PDE with the potential to be impacted by the Proposal will be surveyed 	Pre-clearance fauna survey completed	Review detailed drawings showing habitat retention / clearing line	Pre-clearance fauna survey report

<ul style="list-style-type: none"> • The pipeline route will be modified where practicable, to avoid or minimise impact to habitats known or likely to be suitable for conservation significant fauna (including malleefowl mounds and malleefowl suitable habitat) • Where avoidance of suitable habitat is not practicable, the pipeline route will pass through suitable habitats with the least extent of remnant vegetation, to minimise fragmentation of contiguous habitat • Conservation significant fauna / fauna habitat (e.g. malleefowl individuals / mounds / suitable habitat), recorded during the pre-clearance targeted survey will be logged on the project's GIS database • Clearing areas are to be clearly demarcated (e.g. signage, fencing or flagging), to prevent un-authorised clearing of, or access through, fauna habitat that is to be retained <p>Additional clearing and rehabilitation management actions are provided in Section 2.2.</p>			
<p><u>Protection of fauna</u></p> <ul style="list-style-type: none"> • Clearing should be timed, as far as practical, to prevent coinciding with the breeding season for conservation significant fauna that may breed within the PDE including Malleefowl, Western Spiny-tailed Skink, Gilled Slender Bluetongue • For three consecutive days immediately prior to logging or vegetation clearing activities the areas should be trapped and surveyed by an appropriately licenced and experienced ecologist to remove and relocate any conservation significant fauna (including Malleefowl, Western Spiny-tailed Skink, and Gilled Slender Bluetongue) that may be directly impacted by clearing and site disturbance activities • During initial clearing, machinery will be sat idle for at least half an hour to allow fauna to migrate away from the disturbance area • During initial clearing, an appropriately licenced and experienced ecologist will be present to watch for fauna, and ensure fauna individuals encountered can be moved to a safe location 	<p>Construction drawings indicating no-go areas</p> <p>No injury or death of conservation significant fauna due to construction</p> <p>Injuries and deaths of terrestrial fauna within approved clearing areas minimised during construction</p> <p>No disturbance to fauna habitat outside of approved clearing</p>	<p>Weekly site inspections</p> <p>Fauna encounters (sighting/injured/killed) recorded</p>	<p>Application to DBCA for approval to translocate conservation significant fauna</p> <p>Native fauna interaction / relocation reported to DBCA</p> <p>Incident reports</p>

<ul style="list-style-type: none"> • Clearing of vegetation will be conducted in a progressive manner to allow fauna to escape the clearing activity and relocate to nearby vegetation • Clearing will be undertaken in stages along one front to give fauna the opportunity to escape, as far as practicable • Speed limit restrictions will be applied throughout the PDE to reduce the risk of fauna strikes, any fauna encountered on access roads/tracks will be given right-of-way • Excavations and trenches will be open for the minimum time necessary to facilitate construction. Excavations and trenches left open overnight will be suitably battered to enable fauna egress • Fauna encountered in the construction area will be given the chance to move on if there is no threat to the person's safety in doing so. The Environmental Management Representative (or qualified delegate) will be licensed (under the BC Act) and available at all times during the construction phase to interact with fauna that cannot move away freely • The relocation of conservation significant species will be as approved by DBCA • If injured / sick animals are encountered, a nominated fauna carer listed under the Wildlife Hotline (08 9474 9055) shall be called to care for the animal. The carer may only enter the PDE if escorted by the site manager or foreman. This action is restricted to larger mammal and avian species • Native fauna encounters will be recorded and reported to DBCA • All rubbish will be disposed of in appropriate bins and disposed of off-site as appropriate, to avoid native or introduced fauna scavenging 	<p>areas during construction</p> <p>No injuries and deaths of fauna outside of approved clearing areas during construction</p> <p>All injured fauna placed in wildlife care</p>		
<p><u>Weed control programme</u></p> <p>Refer to Section 2.2</p>			
<p><u>Fire management plan</u></p> <p>Refer to Section 2.2</p>			
CONSTRUCTION / MAINTENANCE			

Protection of fauna

- Speed limits between 40-80 km p/hr will be applied throughout the PDE to reduce the risk of fauna strikes
- Fauna encountered in the construction area will be given the chance to move on if there is no threat to the person's safety in doing so
- If injured / sick animals are encountered, a nominated fauna carer listed under the Wildlife Hotline (08 9474 9055) shall be called to care for the animal. The carer may only enter the PDE if escorted by the site manager or foreman. This action is restricted to larger mammal and avian species
- Native fauna encounters will be recorded and reported to DBCA

No injury or death of conservation significant fauna

Injuries and deaths of terrestrial fauna within approved clearing areas minimised

All injured fauna placed in wildlife care

Fauna encounters (sighting/injured/killed) recorded

Native fauna interaction / relocation reported to DBCA

Incident reports

2.4 Inland waters

EPA factor / objective:			
Inland Waters - <i>To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected</i>			
EMRP objective:			
To address ESD item 83			
To minimise hydrological and water quality impacts to key environmental values as far as practicable			
Key environmental values of MDE:			
No key values.			
Key environmental values of PDE:			
- natural drainage systems and surface waters occurring within and downstream of the PDE.			
Key impacts and risks:			
- Soil erosion from cleared areas causing sediment discharge to downstream receptors			
- Clearing and earthworks at waterway crossings causing erosion to bed and banks and sediment discharge to downstream receptors			
- Excavation of existing site contamination causing contamination of surface water or groundwater quality			
- Spills, leaks or discharges of hazardous materials or wastes causing contamination of surface water or groundwater quality.			
ESD item 83			
<i>"A preliminary erosion and sediment control plan will be prepared for construction of the pipelines."</i>			
Management actions	Management target	Monitoring	Reporting
CONSTRUCTION			
<u><i>Erosion and sediment control</i></u> <ul style="list-style-type: none"> As far as practicable, timing of construction on waterway crossings to be undertaken in summer / autumn. Weather conditions to be monitored for potential storm events, and temporary erosion / sediment controls to be utilised to stabilise waterway crossing areas Disturbed areas will be rehabilitated or otherwise stabilised as early as practicable to minimise the potential for erosion Erosion and sediment control measures will be applied during construction and hydrostatic testing of the pipeline, to prevent erosion of exposed areas, and sediment discharge to adjacent areas (in particular those with key environmental values) Control measures for areas of higher erosion risk (e.g. waterway channel and / or steep ground) may include: 	Erosion and sediment controls installed and maintained as per management actions	Annual inspection of erosion and sediment controls within the PDE in April prior to winter rains Inspection of erosion and sediment controls within construction areas, within 24 hours of major storm events or 48 hours if over the weekend	Environmental inspection reports Non-compliance / corrective action reports

<ul style="list-style-type: none"> – Temporary cut off drains – Temporary stabilisation of stockpiles and disturbed areas – Silt fences – Sediment traps <ul style="list-style-type: none"> • Selection of erosion and sediment control materials will avoid use of materials potentially containing weeds or weed seeds (e.g. hay bales, rock/soil) • Erosion and sediment controls will be reviewed on an annual basis prior to winter rains, to identify runoff patterns and amend controls as required 		Inspection of erosion and sediment controls within rehabilitated areas, within one week of major storm events	
<p><u><i>Hazardous materials and waste management</i></u></p> <ul style="list-style-type: none"> • Inductions will emphasise the need to avoid spills into adjacent vegetation • Storage of wastes, fuels and chemicals within construction areas will be minimised as far as practicable • Materials Safety Data Sheets (MSDS) will be maintained for all hazardous materials stored or used within construction areas • Any hazardous material storage will be in accordance with Australian standards and MSDS requirements including, consultation / approval with DWER as required • Any hazardous material storage area will be on stable ground in an area that is not subject to flooding or erosion • Refuelling on-site will be undertaken on a sealed/bunded surface or using a catch tray • Vehicles and plant will not be left unattended when re-fuelling • Construction wastes will be appropriately stored and handled to minimise spills and leaks • All construction solid wastes (with the exception of topsoil and vegetative material), and liquid wastes / wastewaters, will be disposed off-site at an appropriately licensed waste facility 	<p>Hazardous material and waste storage areas are located, installed and maintained as per management actions</p> <p>All hazardous material or waste spills within the PDE are removed from site and any impacted land remediated</p> <p>All off-site hazardous material or waste spills are reported to DWER and DBCA as relevant</p>	<p>Inspection of hazardous material and waste storage areas within construction site</p> <p>Inspection of hazardous material and waste storage areas, within 24 hours of major storm events or 48 hours if over the weekend</p>	<p>Environmental inspection reports</p> <p>Non-compliance / corrective action reports</p> <p>Incident reports</p> <p>Off-site spill reports to DWER and DBCA</p> <p>Controlled waste tracking certificates</p>

<ul style="list-style-type: none"> • A Spill Response Procedure will be prepared and implemented for all hazardous material and waste spills, to ensure spills are contained and cleaned up and impacted areas remediated • All contaminated material generated from spill response will be disposed off-site at an appropriately licensed waste facility • Appropriate spill response materials will be maintained on-site at all times including at hazardous material/waste storage areas and at refuelling sites • All spills that discharge outside the PDE, or have potential to contaminate groundwater will be reported to DWER 			
<p><u>Site contamination management</u></p> <ul style="list-style-type: none"> • The induction program will include training to ensure all personnel are aware of visual and olfactory observations suggesting potential contamination • During intrusive works such as excavations, if visual and or olfactory evidence suggests potential for contamination (e.g. fill material, building rubble, odours, soil staining), works will cease, the Environmental Supervisor will be notified, and the material sampled and analysed. Works will commence once the status of the material has been confirmed and corrective actions implemented (if required) • Determination of contamination and requirements for remediation will be undertaken on advice from the Environmental Supervisor. The site of potential contamination will be contained as required to prevent any spread of contaminants, and will be fenced to prevent any unauthorised access 	<p>All suspected contaminated sites/materials encountered during construction are investigated</p> <p>All actual contaminated sites/materials re remediated as required prior to construction proceeding in those areas</p>	<p>Sampling and analysis of suspected contamination (if encountered)</p> <p>Validation of remediated contaminated site (if required)</p>	<p>Incident report (if suspected contamination encountered)</p> <p>Site investigation report (if contamination encountered)</p> <p>Validation report (if remediation required)</p>
OPERATIONS / MAINTENANCE			
<p><u>Erosion and sediment control</u></p> <ul style="list-style-type: none"> • Erosion and sediment controls repaired/replaced as required (e.g. silt fences, sediment traps) • Erosion protection measures applied (i.e. rock armouring) where rehabilitated areas show evidence of erosion, particularly where adjacent areas support key environmental values (i.e. PECs) • Pipeline inspections (monthly) to assessment for any potential maintenance and /or emergency response procedures to be implemented 	<p>Minor evidence of erosion from rehabilitated surfaces</p> <p>No visible sediment discharge to adjacent areas of key environmental value</p>	<p>Annual inspection of rehabilitated areas in April prior to winter rains</p>	<p>Environmental inspection reports</p> <p>Non-compliance / corrective action reports</p>

2.5 Social surrounds

EPA factor / objective:			
Social surroundings – <i>To protect social surroundings from significant harm.</i>			
EMRP objective:			
To address ESD item 104			
To minimise impacts to amenity of residential and recreational areas as far as practicable.			
Key environmental values:			
<ul style="list-style-type: none"> - Traverses rural residential properties - Aboriginal heritage places occur within the PDE - The PDE intersects the Widi Mod Native Title Claim (NNTT No. 2661), the Mullewa Wadjari Community, the Wajarri Yamatji and the Southern Yamatji 			
Key impacts and risks:			
<ul style="list-style-type: none"> - Loss/disturbance to registered Aboriginal heritage places - Excavation of unknown subsurface archaeological material - Impact to Native Title, including limiting access to areas for traditional purposes (camping and ceremonies), disassociation with local customs and culture, changes in amenity, and potential lack of provision of appropriate compensation - Negative impacts to pastoral lease operations and any tourism activities in the PDE - Impacts to amenity values (including visual landscape, visual aesthetics values and recreational tourism) associated with the PDE 			
ESD item 104			
<i>"An environmental management plan will be provided that describes the proposed management, and monitoring methods to be implemented to mitigate potential impacts to social surrounds."</i>			
Management actions	Management target	Monitoring	Reporting
CONSTRUCTION			
<u>Aboriginal heritage management:</u> <ul style="list-style-type: none"> • Inductions will include information on Aboriginal heritage places and aboriginal culture, and the requirement not to disturb heritage materials/values • 'Other heritage places' will be flagged on site and avoided where possible • If suspected Aboriginal heritage sites/materials are found, works within 20 m will cease immediately, and the Environmental Superintendent and the Department of Planning, Lands and Heritage (DPLH) will be notified. DPLH will advise further actions/management. Works will not resume until DPLH are satisfied with management of the materials. 	<p>No loss/disturbance to registered Aboriginal heritage places</p> <p>Reporting of all suspected Aboriginal heritage sites/materials uncovered</p>	<p>Visual monitoring during clearing and excavation works</p> <p>Aboriginal heritage survey (if required) of suspected Aboriginal heritage sites/materials uncovered</p>	<p>Incident report</p> <p>Aboriginal heritage survey report (if required) of sites/materials uncovered</p> <p>Aboriginal heritage survey report to DPLH</p>

<ul style="list-style-type: none"> • If necessary, a qualified heritage specialist will be engaged to survey and manage Aboriginal heritage sites/materials prior to work recommencing • Any disturbance of Aboriginal heritage sites/materials will be undertaken in consultation with DPLH and in accordance with the requirements of the <i>Aboriginal Heritage Act 1972</i> • The location and details of any newly discovered Aboriginal heritage sites/materials will be reported to DPLH 			
<p><u>Pastoral lease management</u></p> <ul style="list-style-type: none"> • Advanced notification to stakeholders of works on their property, in order to manage their livestock appropriately • Clearing and ground disturbance restricted to designated areas • Erosion and sediment control measures will be applied during construction to prevent erosion of exposed areas, and sediment discharge to adjacent areas • Progressive rehabilitation throughout construction will minimise loss of soil viability (topsoil collected, temporarily stored, and respread) 	<p>No un-authorised clearing of native vegetation</p> <p>Erosion and sediment controls installed and maintained</p>	<p>Weekly site inspection of clearing lines and cleared areas to identify erosion</p>	<p>Weekly inspection reports</p>
<p><u>Noise management:</u></p> <ul style="list-style-type: none"> • Construction works will be undertaken in accordance with the Environmental Protection (Noise) Regulations 1997 • Construction activities (including materials transport) will be limited between 0700 and 1900 Monday to Saturday, excluding public holidays (standard work hours) unless an out of hours Noise Management Plan is obtained • Where construction activities are required outside of approved operating hours: <ul style="list-style-type: none"> – Prepare and obtain approval for a Noise Management Plan (NMP) – Ensure all nearby residents are notified prior to works, with details of time period of activity and summary of why the activity is required outside of usual hours – Reduce noise emissions as much as practicable, e.g. croakers in place of reverse beepers 	<p>Compliance with the Environmental Protection (Noise) Regulations 1997</p> <p>Approved NMP (if required)</p>	<p>Monitoring as specified in the NMP (if required)</p> <p>Weekly check of machinery and equipment condition</p>	<p>Reporting as specified in the NMP (if required)</p>

<ul style="list-style-type: none"> Maintenance schedules will be followed to ensure that all equipment is in good condition 			
<p><u>Dust management:</u></p> <ul style="list-style-type: none"> Cleared and exposed areas will be rehabilitated or otherwise stabilised as early as practicable to minimise the potential for wind erosion Dust emissions will be controlled through appropriate measures where practicable including, water application through water carts and chemical dust suppressants. This applies to the entire PDE and includes, but is not limited to access roads, cleared areas, and stockpiles 	All dust controls in place	<p>Weekly site inspection of dust controls</p> <p>Opportunistic monitoring with emphasis on windy periods</p>	<p>Complaints register</p> <p>Incident reporting</p>
<p><u>Complaints and notifications:</u></p> <ul style="list-style-type: none"> A complaints register will be established and maintained Appropriate access routes, staff parking and work area conditions will be determined prior to activity commencing to minimise amenity impacts on sensitive receptors Residents in proximity to the DE will be advised of the proposed construction work schedule Respond to any problem areas identified by pastoral land users / owners during construction 	<p>Complaints register maintained</p> <p>All complaints responded to within 24 hours or 48 hours if occurring over weekend</p> <p>Access Permits</p>	Complaints register	Complaints register
OPERATIONS / MAINTENANCE			
<p><u>Pastoral lease management</u></p> <ul style="list-style-type: none"> Rehabilitation areas monitored for evidence of erosion (by wind/water). Erosion and sediment control measures will be applied, as required, to minimise erosion and sediment discharge to adjacent areas 	Post-mining landscape is suitable for pastoral use	Biannual monitoring of rehabilitated areas for a minimum of three years	Biannual rehabilitation monitoring report
<p><u>Complaints and notifications:</u></p> <ul style="list-style-type: none"> The complaints register will be maintained throughout the operations/maintenance phase of the Proposal 	Complaints register maintained	Complaints register	Complaints register

3. **Adaptive management and review of the EMRP**

3.1 Environmental monitoring and corrective actions

The Environmental Management Representative will be responsible for internal monitoring of the environmental aspects of the MDE and PDE throughout the Proposal life. In particular, rehabilitation success will be closely monitored against completion criteria, with remediation works such as weed and erosion control, and infill seeding, actioned where criteria are not met.

Any non-conformances with the requirements of this EMRP will be discussed between the FIJV Representative, Construction Manager/Supervisor and/or Environmental Management Representative, and rectified or mitigated as soon as possible to ensure minimal ongoing environmental harm. Relevant procedures will be amended/updated as necessary, and inductions and other workforce communication will be undertaken in a timely manner to minimise the risk of re-occurrences.

3.2 EMRP revision

This EMRP is intended to be dynamic and may be updated to reflect changes in management practices and the natural environment with time. This will also allow flexibility to respond to new environmental impacts, and adopt new technologies / management measures.

Amendments to management actions will be completed on an as needs basis. Amendments may be triggered by the following:

- Identification of conservation significant ecological communities (e.g. TEC / PEC), or conservation significant flora / fauna species, within or immediately adjacent to the proposed disturbance footprint
- Changes to relevant legislation
- Where management actions are not achieving the desired outcomes
- Environmental monitoring identifies additional impacts which require management
- Improvements to practices likely to achieve a greater environmental outcome

3.3 Audits

Internal and external audits will be undertaken as per the FIJV contract schedule and the results reported back to the Environmental Management Representative where relevant, in order for them to undertake corrective actions.

4. **References**

GHD Pty Ltd. 2019a. *Yogi Magnetite Mine – Public Environmental Review Document (Assessment No. 2154)*. Prepared for FI Joint Venture Pty Ltd.

GHD Pty Ltd. 2019b. *Yogi Magnetite Project, Pipeline Flora and Fauna Assessment*. Prepared for FI Joint Venture Pty Ltd.

GHD Pty Ltd. 2019c. *Yogi Magnetite Project, Surface water assessment and Yogi Magnetite Project, Groundwater assessment*. Prepared for FI Joint Venture Pty Ltd.

GHD Pty Ltd. 2020a. *Western Pipeline Flora and Fauna Desktop Assessment*. Prepared for FI Joint Venture Pty Ltd.

GHD Pty Ltd 2020b, *Yogi Magnetite Project, Fauna Assessment*. Prepared for FI Joint Venture Pty Ltd. Brad Goode & Associates Pty Ltd. 2019a. *Due diligence risk assessment advice for a mine proposal at Yalgoo and an infrastructure corridor between Yalgoo and Geraldton Western Australia*. Prepared for FI Joint Venture Pty Ltd.

Brad Goode & Associates Pty Ltd. 2019b. *Report of an Aboriginal Heritage survey for the Yogi Magnetite Project in the Shire of Yalgoo, Western Australia*. Prepared for FI Joint Venture Pty Ltd.

GHD

Level 10

999 Hay Street

T: 61 8 6222 8222 F: 61 8 6222 8555 E: permail@ghd.com



© GHD 2020

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

6137117-

58499/[https://projects.ghd.com/oc/WesternAustralia1/yogimagnetiteproject/Delivery/Documents/6137117-REP_Environmental Management and Rehabilitation Plan.docx](https://projects.ghd.com/oc/WesternAustralia1/yogimagnetiteproject/Delivery/Documents/6137117-REP_Environmental%20Management%20and%20Rehabilitation%20Plan.docx)

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	S.Isbister R.Lupton	H.Morgan		M.Brook		25/10/2019
B	S Isbister R Lupton K Frehill	H Morgan		M Brook		18/03/2020

www.ghd.com

