Nyidinghu Iron Ore Mine

Environmental Scoping Document

Table of Contents

1. Introduction

- 1.1 Indicative timing and environmental review
- 1.2 Commonwealth Government approvals
- 2. Form and content (work required)
 - 2.1 Preliminary environmental factors
 - 2.2 Specific additional work required for assessment of proposal
 - 2.3 Cumulative Impact Assessment
 - 2.4 Holistic Impact Assessment
 - 2.5 Offsets
 - 2.6 Stakeholder Consultation
 - 2.7 Matters of National Environmental Significance
 - 2.8 Proposal Content Considerations
- 3. Decision-making authorities

Figures

- Figure 1 Regional location of proposal
- Figure 2 Development envelope of proposal
- Appendix 1 Policy and Guidance

Tables

- Table 1General proposal and proponent information
- Table 2Indicative outline of the timing of the environmental review (indicative timeline)
- Table 3Proposal specific and/or additional required work
- Table 4Decision making authorities and processes
- Table 5Other statutory decision-making process which can mitigate potential impacts on the
environment

1. Introduction

The Environmental Protection Authority (EPA) has determined that the above proposal is to be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act).

The purpose of the Environmental Scoping Document (ESD) is to define the form, content, indicative timing and procedure of the environmental review, required by s. 40(3) of the Act.

This ESD has been prepared by the EPA in consultation with the proponent, decision-making authorities and interested agencies consistent with the EPA's *Procedures Manual*.

The EPA requires the proponent to undertake the environmental review according to the procedures in the EPA's <u>Administrative Procedures</u> and <u>Procedures Manual</u>, and the <u>Instructions and</u> <u>Template: How to prepare an Environmental Review Document</u>.

This ESD has not been released for public review. The ESD will be available on the EPA website (<u>www.epa.wa.gov.au</u>) upon endorsement and must be appended to the Environmental Review Document (ERD). The ERD is to be published for public review for a period of 10 (ten) weeks.

The Proponent will undertake a review of the ERD to ensure the requirements of the relevant EPA instructions, templates and guidance have been met. The ERD will include a scoping checklist that identifies the section(s) and page number of the ERD indicating where both all the dot points in the scoping checklist on page 5 of the ERD Template (2021) and the requirements of this ESD can be found.

Proposal information	
Proposal name	Nyidinghu Iron Ore Mine
Proponent	Chichester Metals Pty Ltd
Location	80 kilometres north west of Newman in the Pilbara
Assessment number	APP-0000342
Local Government area	Shire of East Pilbara
Public review period	Environmental Review Document – 10 weeks
EPBC reference no	EPBC 2023/09543

Table 1: General proposal and proponent information

The subject of this ESD is Chichester Metals Pty Ltd's Nyidinghu Iron Ore Mine for the construction and operation of an iron ore mine and borefield approximately 80 kilometres (km) north west of Newman, in the Pilbara Region of Western Australia.

The regional location of the proposal is shown in Figure 1 and the development envelope encompassing the physical elements of the proposal is delineated in Figure 2.

1.1 Indicative timing of the environmental review

Table 2 sets out the indicative outline of the timing of the environmental review (indicative timeline) agreed between the EPA and the proponent.

Table 2: Indicative outline of the timing of the environmental review (indicative timeline)

Key assessment milestones	
EPA approves Environmental Scoping Document	February 2024
Proponent submits first draft Environmental Review Document	January 2025
EPA provides comment on first draft Environmental Review Document (12* weeks from receipt of ERD)	April 2025
Proponent submits revised draft Environmental Review Document (8 weeks)	June 2025
EPA authorises release of Environmental Review Document for public review (2 weeks from EPA approval of ERD)	July 2025
Proponent releases Environmental Review Document for public review for 10 weeks	July 2025
Close of public review period	October 2025
EPA provides Summary of Submissions (6* weeks from close of public review period*)	November 2025
Proponent provides Response to Submissions (8 weeks)	February 2025
EPA reviews the Response to Submissions (8* weeks from receipt of Response to Submissions)	April 2026
EPA prepares draft assessment report and completes assessment	June 2026
EPA finalises Assessment report (including two-week consultation on draft conditions) and gives report to Minister (6 weeks from completion of assessment)	August 2026

*timeframes extended to account for parallel assessments

1.2 Commonwealth Government approvals

The Proposal has been referred and determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* and is being assessed under a Bilateral Agreement between the Commonwealth of Australia and the State of Western Australia made under section 45 of that Act or an accredited process under section 87 of that Act. The relevant Matters of National Environmental Significance (MNES) for this proposal are:

- Listed threatened species and communities (s. 18 and s. 18A),
- Listed migratory species (s. 20 and s. 20A), and
- Any other relevant information on the matters protected by the EPBC Act.

This ESD includes work required to be carried out and reported on in the ERD relation to MNES. The Environmental Review Document will also address the matters in Schedule 4 of the *Environmental Protection and Biodiversity Conservation Regulations 2000*.

The proponent has conducted preliminary studies and surveys over parts of the development envelope which have identified suitable habitat potential presence of species listed under the EPBC Act. Following EPA and EPBC Act guidance, the proponent is to complete additional surveys to determine MNES that may be impacted by proposal implementation. The ERD is required to assess and address potential impacts to MNES that may be impacted (directly, indirectly or cumulatively) by proposal implementation. Proposed offsets to address significant residual impacts on MNES will also be discussed in the ERD.

2. Form and content (required work)

The EPA requires that the form of the report on the environmental review required under section 40 of the EP Act is in accordance with the <u>Instructions and Template: How to prepare an Environmental</u> <u>Review Document</u>.

The EPA requires that the content of the ERD is in accordance with the *Instructions and Template: How to prepare an Environmental Review Document.*

The EPA also requires that the environmental review includes the proposal specific additional content outlined in Section 2.

2.1 Preliminary key environmental factors

The preliminary key environmental factors to be addressed in the ERD are:

- 1. Flora and Vegetation
- 2. Subterranean Fauna
- 3. Terrestrial Fauna
- 4. Terrestrial Environmental Quality
- 5. Inland Waters
- 6. Greenhouse Gas Emissions
- 7. Social Surroundings
- 8. Landforms

2.2 Specific and/or additional work required for assessment of proposal for key environmental factors

The general form and content of the ERD will be in accordance with the <u>Instructions and Template</u>: <u>How to prepare an Environmental Review Document</u>.

Table 3 outlines the proposal specific and/or additional work required as it relates to preliminary key environmental factor/s for the proposal.

Table 3: Proposal specific and/or additional required work

All Environmental Factors		
Required work	Work to be consistent with the requirements in the <u>Instructions and</u> <u>Template: How to prepare an Environmental Review Document</u> and provided for each factor:	
	1. Factor objective	
	 relevant policies and guidance (including, but not limited to Appendix 1), 	
	3. receiving environment,	
	4. potential environmental impacts,	
	5. mitigation,	
	6. assessment and significance of residual impact	
	7. environmental outcomes	

	Work required to inform the ERD will be conducted in accordance with the requirements of the most recent EPA Environmental Factor Guidelines and Technical Guidance at the time the ERD is published for each preliminary key environmental factor, and a consolidated report of the surveys and/or investigations undertaken will be provided for each factor. Where previous investigations or surveys are relied upon, justification will be provided to demonstrate that they are relevant and consistent with EPA guidance. For each preliminary key environmental factors the proponent is required to follow relevant recovery plans, conservation advices and/or threat abatement plans for conservation significant species, communities, habitat (supporting, significant, and critical), and ecosystems that are known to occur, or are likely to occur in the vicinity of the proposal area. Any instances where published
	Where previous investigations or surveys are relied upon, justification will be provided to demonstrate that they are relevant and consistent with EPA guidance.
Flora and Vegetation	on
Required work	 8. In accordance with EPA guidance, conduct surveys to identify and characterise the flora and vegetation of areas in a local and regional context, and clarify and justify the quantification of the local and regional context used in the assessment. If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results from all relevant previous surveys, relevant to the proposal area. If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance. If previous surveys and records are utilised, older specimens should be compared with newer collected specimens.
	 9. Identify and describe the flora species identified by the studies and surveys. Describe significant flora and provide an analysis of local and regional context, (refer to the <u>Environmental factor guideline – Flora and vegetation</u> for definition of significant). 10. Provide tables with quantitative assessments of impact: a. For significant flora, this includes: i. number of individuals and populations in a local and regional context, and clarify and justify the quantification of the local and regional context used
	in the assessment ii. numbers and proportions of individuals and populations directly or potentially indirectly impacted, and

	iii. numbers/proportions/populations currently protected within the conservation estate (where known).
	 For all vegetation units (noting threatened and priority ecological communities and significant vegetation) this includes:
	 area (in hectares) and proportions directly or potentially indirectly impacted, and
	 proportions/hectares of the vegetation unit currently protected within conservation estate (where known).
	11. Alongside the Mine Closure Plan, discuss the impacts of surplus water discharge and surface water management (such as, but not limited to, creek diversion) on flora species, vegetation types, habitats and communities, and how impacts will be managed during operations and post-closure with regards to the mitigation hierarchy.
Subterranean Faun	a
Required work	 In accordance with EPA guidance, conduct studies and surveys to identify and characterise the subterranean fauna (identified to a species level where possible), assemblages, and habitats in a local and regional context, and clarify and justify the quantification of the local and regional context used in the assessment.
	If multiple surveys have been undertaken to support the assessment, a consolidated report will be provided including the integrated results from all relevant previous surveys, relevant to the proposal area.
	If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance.
	If previous surveys and records are utilised older, specimens should be compared with newer collected specimens. Genetic analysis may be required to match and identify specimens.
	2. Identify and describe the subterranean fauna habitats:
	a. That may be impacted directly and indirectly by the proposal during construction and operations.
	 Describe the significance of these values in a local and regional context.
	 Include relevant geological and hydrological information to determine habitat suitability and connectivity, including inside and outside the impact areas.
	3. Provide figures and maps showing the extent of subterranean fauna habitats in relation to the proposal and species distributions. Additionally, include a table of the proportional extents of each habitat within the study area and development envelope, and the predicted amount to be directly impacted and remaining. Consider any local or regional cumulative impacts. Any graphics provided must be clearly annotated and of high resolution.

	 If unable to provide any of the above information, clearly provide a justification. 4. Identify and describe the fauna assemblages present and likely to be present within the development envelope that may be impacted by the proposal. 5. Describe and quantify the extent of potential direct, indirect and cumulative impacts, including percentages, to subterranean fauna as a result of implementation of the proposal during both construction and operations, in a local and regional context. 6. If new or alternative techniques are used, a peer review of information, modelling, surveys conducted, and management plans developed for this factor are required to determine that EPA
	objectives will be met.
Terrestrial Fauna	
Required work	7. In accordance with EPA guidance conduct studies to identify and characterise the vertebrate, aquatic invertebrate, and short-range endemic (SRE) invertebrate fauna and fauna habitats in a local and regional context, clarify and justify the quantification of the local and regional context used in the assessment.
	If multiple surveys have been undertaken to support the assessment, a consolidated report should be provided including the integrated results from all relevant previous surveys, relevant to the proposal area.
	If previous surveys are relied on for context, justification should be provided to demonstrate that they are relevant and consistent with EPA guidance.
	If previous surveys and records are utilised older specimens should be compared with newer collected specimens. Genetic analysis may be required to match and identify specimens.
	 Invertebrate species to be identified to the species level or provide a justification if unable to do so. Resolve the invertebrate specimen identifications to species/operational taxonomic units (OTU), using genetic and/or morphological methods.
	 Identify and describe the fauna assemblages present and likely to be present within the development envelope that may be impacted by the proposal.
	 Identify significant or restricted fauna and describe in detail their known ecology, likelihood of occurrence, habitats and known threats, (refer to the Environmental factor guideline – Terrestrial fauna for definition of significant fauna).
	11. Describe and quantify the extent of potential direct, indirect and cumulative impacts, including percentages, to habitats and significant species that may occur following implementation of the proposal during both construction and operations, in a local and regional context.

	12. Provide a table of the proportional extents of each habitat within the study area and development envelope, and the predicted amount to be directly impacted and remaining. Consider any local or regional cumulative impacts.
Terrestrial Environ	mental Quality
Required work	 Provide details and rationale for locations of Waste Rock Landforms (WRL), Tailings Storage Facility (TSF), stockpiles and landfills, including a detailed flood risk assessment (i.e. meteorological, geological and geographical characteristics).
	 Provide details of the stability of the site from a geotechnical and geochemical perspective.
	15. Undertake and provide details of a baseline soil quality assessment of the development envelope.
	16. Include figures of the mapped soil units and soil profile in the ERD.
	17. Provide details on the presence of acid sulphate soils within the proposal area, and if present details of proposed management measures to be implemented during construction to minimise impacts to terrestrial environmental quality.
	 Assess the mineralogy for likelihood of asbestiform minerals and provide justifications.
	19. Conduct a detailed flood risk assessment to justify the locations of high risk landforms such as the WRL and TSF.
	20. Provide a graphical conceptual representation of the final TSF.
	21. Conduct chemical and physical characterisation of the waste materials, including characterisation of tailings pore water.
	22. For each processing waste/tailings stream identify:
	a. geochemical properties
	b. environmental risk
	c. any issues with drainage and tailings consolidation.
	 Conduct seepage modelling for the TSF to estimate seepage geochemistry, volumes and likely extent of plumes, including potential impacts to receptors.
	24. Assess impacts on surrounding environment if there was a failure of TSF integrity.
	25. Provide details of chemical and diesel storage (including quantities), and power generation and management measures, including contingencies in the event of a spill, to ensure that contamination of land does not occur.
	26. Include required works for proposed landfill operations, including but not limited to proposed location(s), waste type(s), monitoring and management, and incorporation with the Mine Closure Plan.
	27. Determine and document if any of the proposal is likely to be listed as

	a contaminated site under the Contaminated Sites Act 2003 (WA) as a result of implementing the proposal.
	 Provide a Mine Closure Plan prepared in accordance with the Guidelines for Preparing Mine Closure Plans (EPA and DMIRS 2020).
Inland Waters	
Required work	29. Characterise the baseline hydrological and hydrogeological regimes in local and regional context, clarify and justify quantification of the local and regional context used in the assessment, including, but not limited to, catchment boundaries, water quality and quantity, water levels, water chemistry, stream flows and flood patterns. Include a detailed description of the geological framework within the zone to be impacted by groundwater abstraction and any interdependence between surface and groundwater features/bodies. Include, where relevant, influences on water availability.
	30. Undertake baseline surface water quality sampling of the ephemeral creek lines that run through the development envelope (i.e., if surface water is present).
	 Identify and characterise any environmental receptors that may be impacted by changes to inland waters as a result of the proposal.
	 Provide a detailed description of the proposal aspects that have the potential to impact inland waters.
	33. Undertake a desktop acid sulfate soils risk assessment to determine the risk of presence of acid sulfate soils. Undertake an acid sulfate soils survey if results from the desktop risk assessment identify this to be necessary.
	 Identify the location of abstraction/discharge bores and identify and discuss any associated impacts of groundwater abstraction and drawdown.
	35. Provide a hydrogeological assessment for the proposal (including detailed numerical modelling groundwater modelling) to assess potential impacts on local and regional aquifers due to dewatering and reinjection and subsequent impacts to groundwater dependent ecosystems, including but not limited to those within Fortescue Marsh and Weeli Wolli Creek. This must address aquifer and pit lake recovery during mine closure.
	36. Provide a detailed description of the design and location of the proposal with the potential to impact surface and groundwater, and the disturbance of acid sulfate soils, if present.
	37. Discuss seepage modelling of the waste rock and tailings storage facilities in relation to inland waters.
	38. Undertake hydrological investigations to determine:
	 a. the effects any modified drainage will have on the surface and groundwater quality and quantity,
	b. the likely direct and indirect impact areas from the above and

	 c. the impacts of climate change, potential weather conditions, cumulative impacts and a range of climatic scenarios including probable maximum precipitation.
	39. Provide a Mine Closure Plan prepared in accordance with the Guidelines for Preparing Mine Closure Plans (DMP and EPA, 2015).
	40. A peer review of information, modelling, surveys conducted, and management plans developed for this factor are required to determine that EPA objectives will be met.
Greenhouse Gas E	missions
Required work	41. Provide credible estimates of scope 1, scope 2 and scope 3 greenhouse gas emissions (annual and total) in tonnes of carbon dioxide equivalent (CO2-e) over the life of the proposal. Detail methods used to estimate emissions, provide supporting evidence, justifications and diagrams.
	42. Provide a breakdown of estimated scope 1 and scope 2 greenhouse gas emissions in tonnes of CO2-e by all sources. Consider all proposed activities in determining the sources of emissions (e.g. clearing of land).
	43. Provide calculations and calculation methodology for determining estimated emissions of CO2-e for all sources.
	44. Benchmark the proposal's emissions against other iron ore projects. Information which supports that the identified projects are comparable to the proposal should be included.
	45. The proponent has started that the proposal would be carbon neutral by 2030 in referral information. Provide a detailed management plan, in accordance with EPA guidance, how the proponent will demonstrate the proposal's trajectory towards net zero emissions by 2050. The management plan should include at a minimum:
	a. information required by work items above.
	 a graph and table showing regular targets reflecting an incremental reduction in emissions towards net zero emissions by 2050. Where the proposed emissions reduction targets do not demonstrate a trajectory towards net zero by 2050, clearly articulate a compelling reason why it is not possible to achieve this.
	c. mitigation (avoidance, reduction, offset) measures to be implemented with associated timeframes and evidence to demonstrate that the interim and long-term targets will be met. Where it is proposed that, following implementation of the avoidance and reduction measures, authorised offsets will be applied to meet the targets, evidence which supports that the mitigation measures are capable of achieving the stated targets is not required.
	d. analysis of other potential abatement measures (e.g. renewables) relevant to the proposal that are not proposed to

	be implemented which provides the rationale to support that these measures are unable to be implemented.
	e. reporting requirements for publicly and periodically reporting against the stated targets.
	46. A peer review of information, modelling, surveys conducted, and management plans developed for this factor are required to determine that EPA objectives will be met
Social Surrounding	S
Required work	47. Characterise and describe the social, cultural, amenity, and heritage values within and adjacent to the Proposal area and any sensitive receptors that may be directly or indirectly impacted as a result of this Proposal. This includes any receptors that may be affected by land clearing, construction and operation activities, noise and dust emissions, traffic, access, and amenity issues. Include relevant maps to show the locations of the sensitive receptors likely to be affected by the proposal. Identify sites of cultural significance within a regional context, in consultation with the Traditional Owners.
	48. Identify and assess potential impacts to any pastoral leases that may occur as a result of this proposal being implemented. Consult with pastoral leaseholders and users that may be impacted, either directly or indirectly, regarding operation and closure land uses.
	49. Describe and assess the potential impacts (direct, indirect and cumulative) to social surroundings as a result of changes to the environment from the Proposal considering Traditional Owners and Pastoral Stations and their activities on the land.
	50. Describe how the <i>Aboriginal Heritage Act 1972</i> processes will consider physical and biological impacts to Aboriginal cultural heritage values within the proposal area.
	51. Describe the likely outcomes of the <i>Aboriginal Heritage Act 1972</i> process (e.g. whether a section 18 permit or management plan will be required to authorise harm)
	52. Describe how application of the <i>Aboriginal Heritage Act 1972</i> is likely to result in consistency with the EPA's objective to protect social surroundings from significant harm
	53. For areas outside the proposal, where the proposal is likely to have a physical, biological or abiotic impact to Aboriginal cultural values provide information regarding:
	 a. potential impacts (both direct and indirect, such as clearing, dust, noise or smell)
	 b. the Aboriginal cultural heritage values likely to be significantly harmed by those impacts
	 c. the extent and duration of the impacts on Aboriginal cultural heritage, taking cumulative effects into account
	d. the proposed avoidance and mitigation of impacts to Aboriginal cultural heritage
	e. residual impacts to Aboriginal cultural heritage values

	 f. the proposed environmental outcomes to protect Aboriginal Cultural Heritage values which are likely to be significantly harmed by a direct or indirect impact from the proposal.
	54. Identify the relevant Aboriginal groups and Traditional Owners who have or will be consulted.
	55. Provide details of how consultation has or will be undertaken with Aboriginal groups and Traditional Owners including:
	 a. informed consultation about the proposal and its physical, biological or abiotic impacts on Aboriginal cultural heritage values
	b. information about proposed avoidance and mitigation
	 c. demonstrate how a reasonable opportunity has been provided on Aboriginal cultural heritage values, physical, biological or abiotic impacts on those values, and proposed avoidance and mitigation
	d. outcomes of any consultation undertaken
	 a summary of the consultation process and outcomes as it relates to the proposal's physical and/or biological impacts on Aboriginal cultural heritage values
Landforms	
Required work	59. Identify landforms likely to be impacted. Identify and describe areas that will be altered, both temporarily and permanently, those that will remain as a structural or visual impact on the landform, and those that are proposed to be restored and/or revegetated.
	60. Provide information on the significance of the Weeli Wolli delta and Fortescue Marsh landforms and land systems to be impacted, in terms of intactness, uniqueness and/or regional significance having regard to ecological function including restricted soil types, geodiversity values and habitat for species and also from a visual landscape perspective.
	61. Identification of the environmental values supported by the landform (e.g. geodiversity values, ecological function, habitat etc.), and a discussion of the interrelationships between the values including how the proposal will affect the role of the landform in maintaining these values (e.g. through changes in surface water or groundwater flows, wind movement, precipitation, temperature, stability, landscape connectivity, and soil composition / chemistry).
	62. An analysis and discussion of whether the landform is robust and therefore less sensitive to damage or degradation from cumulative impacts in the region, development activities, or whether it is easily disturbed or degraded
	63. Describe and assess the significance of potential direct, indirect and cumulative impacts to the system within and directly adjacent to the Proposal area. Include an analysis of the nature, magnitude and duration of the impacts (including extent, severity and duration). Provide information on the cumulative impacts of the proposal in the context of other existing or reasonably foreseeable development

	within the Fortescue Marsh.
64	4. A large portion of Weeli Wolli Creek, which feeds into the Fortescue Marsh, is to be included in the proposed Fortescue Marsh Nature Reserve, under the Government's Plan for Our Parks Initiative. Consider any potential risks or impacts (direct, indirect and cumulative) to the proposed reserve that may result from proposal implementation, including post closure.
65	5. Synthesise the above information (i.e. tables, geospatial information, photos, aerials) to describe, spatially define and visually represent the extent of temporary (define timescales) and permanent impacts to the landform, its ecological function and environmental values.

2.3 Cumulative impact assessment – scoping of activities, boundaries and environmental values for relevant environmental factors

The ERD will include a cumulative impact assessment (CIA) to assess the Proposal's contribution to impacts on relevant environmental values. Describe, quantify and discuss the direct and indirect cumulative impacts to environmental values and objectives, within the boundaries of the Fortescue Management Zone and Fortescue River Catchment Area. The CIA will consider successive, incremental and interactive impacts of the proposal on the environment, with one or more past, present and reasonably foreseeable future activities.

Noting the increased level of development in the region, assessment of cumulative impacts will be required to address how the objectives of the environmental factors will be met. The proponent will be required to examine the cumulative impacts of this proposal, the Nyidinghu Iron Ore Mine, alongside the proposed impacts of the separately referred the East Hamersley Railway that this proposal will connect with.

The CIA of these two proposals must also include other development and industries in the catchment area. For example, this will include but is not limited to Fortescue's Chichester Hub, Pilbara Iron Ore Port North-South Railway, Roy Hill, Koodaiderri Iron Ore Mine and Infrastructure Project, Iron Valley, Ferraus Pilbara Project, Marillana Iron Ore and Yandicoogina Iron Ore. There are several other mining and related operations which sit adjacent to the proposed project that are operated by others. The proponent will seek to use available information such as resources like the EPA website to gather data in addressing this aspect.

The ERD will include a CIA of combined effects of different cumulative impacts upon the following environmental factors: Flora and Vegetation, Subterranean Fauna, Terrestrial Fauna, Inland Waters (with a focus on the Fortescue Marsh, Weeli Wolli Creek, and other aquifers within the catchment area) and Greenhouse Gas emissions.

Throughout the preparation of the ERD, there may be additional environmental values identified.

Flora and Vegetation					
Required work	 The boundaries of assessment include the proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope, including the Fortescue Management Zone, Welli Wolli and Fortescue subcatchments, and Upper Fortescue Catchment area. 				
	 Environmental values include the following, which may be considered preliminary until further surveys are completed and additional values may be included (exclusion of any environmental values require justification): 				
	 Fortescue Marsh Management Areas (1b Marsh, 2a Calcrete Flats, 2b Poonda Plain and 3b Marillana Plan), 				
	 Weeli Wolli spring community Priority 1 Priority Ecological Community (PEC), 				
	 Vegetation Association 29, 				
	 Vegetation of sand dunes of the Hamersley Range/Fortescue Valley Priority 3 PEC, 				
	 Fortescue Marsh (Marsh Land System) Priority 1 PEC, 				
	 Narbung Land System Priority 3 PEC, 				
	 Sheet flow dependent vegetation, 				
	 Fortescue Marsh Priority 1 PEC, 				
	 Conservation significant species that occur within the development envelope, and outside the development envelope that may be directly or indirectly impacted by proposal activities, 				
	 MNES that that occur within the development envelope, and outside the development envelope that may be directly or indirectly impacted by proposal activities, 				
	 Other environmental values as identified in future studies. 				
	 Activities considered include clearing 12,365 hectares (ha) of native vegetation, groundwater abstraction, alteration to surface water flows and groundwater systems, and surplus water management. 				
Subterranean Faun	la l				

Required work	 The boundaries of assessment include proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope, including the Fortescue Management Zone, Welli Wolli and Fortescue subcatchments, and Upper Fortescue Catchment area. Environmental values at the time of ESD publication are preliminary pending further surveys and will be required to address impacts to significant or restricted subterranean fauna species and habitat.
	 Activities considered include mine pit excavation, blasting, ground disturbance, groundwater abstraction, surplus water discharge/reinjection, placement of infrastructure and waste landforms, exposure of potential acid forming materials and post- closure formation of pit lake, storage and handling of hazardous materials and wastes.
Terrestrial Fauna	
Required work	 The boundaries of assessment include the proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope, including the Fortescue Management Zone, Welli Wolli and Fortescue subcatchments, and Upper Fortescue Catchment area. Environmental values include the following, which may be considered preliminary until further surveys are completed and additional values may be included (exclusion of any environmental values require justification):
	 Fauna habitat,
	 Conservation significant terrestrial fauna species (including short range endemic species and assemblages), MNES.
	 Aquatic invertebrate species,
	 Other environmental values as identified in additional studies.
	 Activities considered include 12,365 ha of fauna habitat, vehicle and machinery movements, dewatering, alterations and disruptions to surface water flows, surplus water management and waste disposal.
Inland Waters	

Required work	 The boundaries of assessment include the proposal development envelope, and any direct or indirect impacts that may occur outside the development envelope, including the Fortescue Management Zone, Welli Wolli and Fortescue subcatchments, Upper Fortescue Catchment area, and other aquifers present in these locations.
	 Environmental values include the following, which may be considered preliminary until further surveys are completed and additional values may be included (exclusion of any environmental values require justification):
	o Weeli Wolli Creek,
	 Fortescue Marsh,
	 Claypans,
	 Other key water features, including major drainage lines, aquifers and sheetflow areas, as identified in other studies.
	 Activities considered include groundwater abstraction for abstraction during construction, water supply management, alteration of surface water flows, use and storage of hydrocarbons, storage of waste rock and other materials, pit lake formations and closure impacts.
Greenhouse Gas	
Required work	 Boundaries of assessment include emissions contributions to the Western Australian resource sector (mining, processing, transport, oil and gas), and the cumulative emissions contributed to total West Australian greenhouse gas emissions.
	 Environmental values include scope 1 and 2 generations, and other environment receptors at risk due to climate change
	 Activities considered include diesel combustion, use of equipment, vehicles and clearing.

2.4 Holistic impact assessment

Where the combination of the environmental effect of two or more environmental factors or values has the potential to result in a significant impact, provide a holistic impact assessment of the proposal on the environment, applying the EPA's principles and the EPA's objectives for environmental factors:

- Outline the connections and interactions between environmental factors or values that in combination have the potential to have a significant effect on the environment.
- Provide a diagram of the links between environmental factors or values.
- Summarise the potential combined environmental effects.
- Summarise any additional mitigation measures proposed to mitigate combined environmental effects.
- Summarise any significant residual combined environmental effects.
- Summarise proposed additional environmental outcomes for the proposal on the environment as a whole, and (optional) any proposed conditions for consideration by the EPA.

OFFICIAL

Provide a summary of the environmental effect of the proposal on the environment as a whole (as distinct from a summary of the effect for each individual environmental factor or environmental value).

2.5 Offsets

Provide details of the proposed offset including but not limited to:

- objectives and outcomes
- description of actions to be undertaken
- specific and measurable success criteria
- timelines and milestones
- monitoring to assess offset implementation
- reporting details and timing
- financial arrangements
- risks and contingency measures
- governance arrangements including responsibilities and legal obligations
- provide evidence of consultation on offset with relevant stakeholders.

Identify and quantify the significant residual impacts and proposed offsets, including completing the offset template (an example is in Appendix 1 of the WA Offsets Guidelines) and the residual impact significance model table (an example is on Page 11 of the WA Environmental Offsets Guideline).

Where significant residual impacts remain, propose an appropriate offsets package and demonstrate how the proposed offset will counterbalance the significant residual impact.

Demonstrate consideration of the six Principles outlined in the WA Environmental Offsets Policy and WA Environmental Offset Guideline.

Outline how the offset aligns with relevant plans and policies, such as recovery plans.

Evidence that supports the success or viability of the offset (include as an appendix where required).

Where a contribution to the Pilbara Environmental Offsets Fund is proposed to offset the significant residual impacts, provide an Impact Reconciliation Procedure, including the relevant spatial data, prepared in accordance with Instructions: Preparing Impact Reconciliation Procedures and Impact Reconciliation Reports (or any subsequent revisions).

Refer to the relevant guidance for further information on offsets:

- Statement of environmental principles, factors, objectives and aims of EIA
- Environmental factors: WA Environmental offsets policy and WA environmental offset guidelines.
- Greenhouse Gas Emissions factor: Government of Western Australia's Greenhouse gas emissions Policy for major projects and the EPA's Environmental factor guideline – Greenhouse gas emissions.

Note: Offsets are not appropriate for all proposals. They should usually only be considered as the final step in the mitigation hierarchy, and only for significant residual impacts for environmental factors.

Proponents must provide sufficient evidence about and assess whether (and how) an offset is likely to counter-balance a significant residual impact. Conclusions about this cannot be based on assumptions or conjecture.

2.6 Stakeholder consultation

The proponent must consult with stakeholders who are affected by or are interested in the proposal. This includes the decision-making authorities, other relevant state (and Commonwealth) government agencies and local government authorities, Traditional Owners, the local community and environmental non-government organisations.

Additional stakeholders that must be meaningfully consulted include, but are not limited to:

- Nyiyaparli People and Elders
- Karlka Nyiyaparli Aboriginal Corporation
- Pastoral leaseholders, where the development envelope overlaps the pastoral lease or may otherwise, directly or indirectly, affect the pastoral lease.

The proponent must document the following in the ERD:

- List the key stakeholders for the proposal.
- Discuss the stakeholder identification process.
- Discuss the process for stakeholder engagement for the proposal, including ongoing consultation.
- Include outcomes of consultation with stakeholders and a detailed response to issues raised by them (or reference the section in the ERD where they are addressed) (ERD Template Table 5). Identify who was consulted, summary of discussions, key issues / matters raised, outcomes and whether matters raised were resolved or outstanding.
- Do not include generic outcomes of discussions with decision making authorities or stakeholders do include specific outcomes.
- Justify if consultation has not been undertaken.

2.7 Matters of National Environmental Significance

If the EPA is assessing the proposal under the assessment Bilateral Agreement (or as an accredited assessment), this section is required. Include the following:

- List the controlled action provisions.
- List the relevant policy and guidance for the MNES.
- Provide a summary of the existing environmental value(s) that relate to the MNES.
- Summarise the potential impacts (direct, indirect, and cumulative) on the MNES.
- Provide relevant tables and maps
- Summarise the assessment on the relevant environmental factor/s to determine the level of significance of the impact on the MNES. Include how the mitigation hierarchy has been applied.
- Summarise any proposed mitigation.

Summarise whether offsets are required in relation to the MNES and if so, provide details of the proposed offset and how the offset addresses the EPBC Act Environmental Offset Policy

2.8 Proposal Content Considerations

A similar proposal, the Nyidinghu Iron Ore Project (NIOP), was referred to the EPA in 2012 which included the development of an iron ore mine and a railway. The NIOP proposal included a railway to connect the mine with an existing Fortescue railway corridor. In 2021, the proposal was terminated as Fortescue Metals Group advised that the proposal was no longer representative of the intended project.

The current referred proposal, the Nyidinghu Iron Ore Mine <u>APP-0000342</u> (the Mine) is similar to the NIOP proposal, however it does not include the railway component. The Mine has been referred to the EPA by Chichester Metals Pty Ltd, a subsidiary of Fortescue. The East Hamersley Railway Project <u>APP-0000341</u> (the Railway) has been referred separately by The Pilbara Infrastructure Pty Ltd., a separate subsidiary of Fortescue.

The Mine contains mine pits, groundwater abstraction (excluding some pipelines), and supporting infrastructure and activities. However, this proposal does not contain the connection or transport of utilities such as water and electricity, or ore transport, nor a portion of the surplus water discharge pipeline that runs over the rail spur connection to the mine. These utilities are intended to be developed as part of the separate Railway proposal, however, are still required by the Mine.

Within the ERD, the proponent is required to clarify how these proposals are functionally separate from each other. In the Introduction of the ERD, the proponent is to address the following:

- 1. Justify and explain how this proposal, the Mine, will operate separately from on the implementation and operation of the Rail (demonstrate how the proposals are not codependent).
 - For example, should the Part IV assessment outcome of the Rail differ to the Mine, would the proposal content of the Mine change? And if so, outline and justify the proposed course of action.
- 2. To verify the independence of the Rail and Mine proposal's from one another, justification needs to be provided that the legislative responsibilities of the Minister for Environment under the EP Act, or other decision making authorities (DMAs) will not be compromised should the EPA's recommendations for implementation differ between the Mine and Rail Proposal's.

3. Decision-making authorities

The Proponent has identified the State decision-making authorities listed in Table 4 for this Proposal. Additional decision-making authorities may be identified during the course of the assessment. The proponent is required to update and complete the information in Table 4 and Table 5, which is to be provided in the ERD on a per impact basis.

Information about how DMAs processes can meet expected outcomes and EPA objectives is preliminary or may be unknown at this ESD stage.

Table 4: Decision making authorities and processes

Decision-making authority	Legislation or Agreement regulating the activity	Approval required (and specify which proposal element the approval is related to)	
Minister for Aboriginal Affairs	Aboriginal Heritage Act 1972	Section 18 consent to impact a registered Aboriginal heritage site.	
Minister for Environment	Biodiversity Conservation Act 2016	Section 40 authority to take or disturb threatened species. Section 45 authority to modify occurrence of a threatened ecological community.	
Minister for Mines and Petroleum	Mining Act 1978Grant of appropriate tenure.Section 16 approval to lease, transfer or otherwiseland under the Land Administration Act (note: applied)is leased or disposed of under the LAA).		
Minister for State Development	Iron Ore (FMG Chichester Pty Ltd) Agreement Act 2006	State Agreement Act	
Minister for Water	Rights in Water and Irrigation Act 1914Section 17 permit to interfere with beds and banks.Section 26 A for dewatering licence.Section 5C licence to take water.		
	Waterways Conservation Act 1976 and Waterways Conservation Regulations 1981	Section 47 disposal licence.	
Chief Executive Officer, Department of Biodiversity, Conservation and Attractions (DBCA)	Biodiversity Conservation Act 2016Section 5 authority to take flora and fauna (oth species).		
	Conservation and Land Management Act 1984 (CALM Act)	Permit/lease/licence in respect of State forests, timber reserves, national parks, conservation parks, nature reserves and land vested in Conservation and Parks Commission.	

		The proposed mine development envelope shares a boundary with Unallocated Crown Land, which is proposed for conservation under the CALM Act with DBCA as the land manaaer.
Chief Dangerous Goods Officer, Department of Energy, Mines, Industry Regulation and Safety	Dangerous Goods Safety Act 2004	Storage and handling of dangerous goods.
Executive Director Resource and Environmental Compliance, Department of Energy, Mines, Industry Regulation and Safety	Mining Act 1978	Mining Proposal and Mine Closure Plan.
State Mining Engineer, Department of Energy, Mines, Industry Regulation and Safet	Mines Safety and Inspection Act 1994	Mine safety. Section 42(3)a approval to commence mining operations.
Chief Executive Officer, Department of Water and Environmental Regulation	Environmental Protection Act 1986	Part V works approval and licence.
Shire of East Pilbara	Building Act 2011Building permit (worker accommodation, offices etc).	
	Planning and Development Act 2005	Development approval.
And other DMAs as identified.		

Table 5: Other statutory decision-making process which can mitigate potential impacts on the environment

Environmental impact	How is the impact regulated by other decision- making process(es)?	Limit(s) of the decision-making process(es) to regulate the impact e.g., time limits, excluded operations	Likely environmental outcome of decision-making process(es), and consistency with EPA objective	Conditions, enforcement, and review process required by decision- making process(es)	Stakeholder engagement in decision-making process(es)
Proponent to populate and provide in the environmental review document.					

OFFICIAL







Figure 2: Development envelope of the Nyidinghu Iron Ore Mine, within the Fortescue Marsh Management Zone.

Appendix 1 – Policy and Guidance

Flora and Vegetation

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2021)
- Environmental factor guideline Flora and vegetation (2016)
- Technical guidance: Flora and vegetation surveys for environmental impact assessment (2016)
- Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)
- Instructions for preparing Impact Reconciliation Procedures and Impact Reconciliation Reports (2021)
- Evaluating the environmental condition of Weeli Wolli Creek (2018)
- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability, Environment, Water, Population and Communities (2012)
- WA Environmental Offsets Policy, Government of Western Australia (2011)
- WA Environmental Offsets Guidelines, Government of Western Australia (2014)
- WA Environmental Offsets Template (2014)
- Fortescue Marsh Management Strategy 2018-2024, Department of Biodiversity, Conservation and Attractions (2018)
- Pilbara Conservation Strategy, Government of Western Australia (2018)
- DBCA's Impact and Invasiveness Rating for the Pilbara Region (2023)

Subterranean Fauna

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2021)
- Environmental factor guideline Subterranean fauna (2016)
- Technical guidance: Subterranean fauna survey for environmental impact assessment (2021)
- Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)

- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability, Environment, Water, Population and Communities (2012)
- WA Environmental Offsets Policy, Government of Western Australia (2011)
- WA Environmental Offsets Guidelines, Government of Western Australia (2014)
- WA Environmental Offsets Template (2014)
- Fortescue Marsh Management Strategy 2018-2024, Department of Biodiversity, Conservation and Attractions (2018)
- Pilbara Conservation Strategy, Government of Western Australia (2018)

Terrestrial Fauna

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2021)
- Environmental factor guideline Terrestrial fauna (2016)
- Technical guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (2020)
- Technical guidance: Sampling of short range endemic invertebrate fauna (2016)
- Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) (2021)
- Instructions for preparing Impact Reconciliation Procedures and Impact Reconciliation Reports (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)
- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Interim guideline for preliminary surveys of night parrot (Pezoporus occidentalis) in Western Australia (2017)
- Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy, Department of Sustainability, Environment, Water, Population and Communities (2012)
- WA Environmental Offsets Policy, Government of Western Australia (2011)
- WA Environmental Offsets Guidelines, Government of Western Australia (2014)

- WA Environmental Offsets Template (2014)
- Fortescue Marsh Management Strategy 2018-2024, Department of Biodiversity, Conservation and Attractions (2018)
- Pilbara Conservation Strategy, Government of Western Australia (2018)
- National Light Pollution Guidelines for Wildlife (2023)
- Environmental Management Plan Guidelines (2014)
- A review of ghost bat ecology, threats and survey requirements (2022)
- A review of Pilbara leaf-nosed bat ecology, threats and survey requirements (2022)

Terrestrial Environmental Quality

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Environmental Factor Guideline Terrestrial Environmental Quality (2016)
- Instructions on how to prepare an environmental review document (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)
- *Guidelines for preparing Mine Closure Plans* (2015)
- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Prepare a mine closure plan, Department of Mines, Industry Regulation and Safety (2020)
- Pilbara Conservation Strategy, Government of Western Australia (2018)
- Preventing acid and metalliferous drainage, Australian Government Department of Industry, Tourism and Resources (2016)
- Tailings Storage Facilities in Western Australia Code of Practice, Department of Mines and Petroleum (2013)
- Guide to the Preparation of a Design Report for Tailings Storage Facilities (TSFs), Department of Mines and Petroleum (2015)

Inland Waters

EPA Policy and Guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Environmental Factor Guideline Inland Waters (2018)
- Instructions on how to prepare an Environmental Review Document (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)
- Guidelines for Preparing Mine Closure Plans, (2020)
- Evaluating the environmental condition of Weeli Wolli Creek, (2018)

- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Pilbara Conservation Strategy, Government of Western Australia (2018)
- Fortescue Marsh Management Strategy 2018-2024, Department of Biodiversity, Conservation and Attractions (2018)

Greenhouse Gas Emissions

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Environmental Factor Guideline Greenhouse Gas Emissions (2023)
- Instructions on how to prepare an environmental review document (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)

Other policy and guidance

- Western Australian Climate Policy 2020
- Greenhouse Gas Emissions Policy for Major Projects Government of Western Australia (2019)

Social Surroundings

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Environmental Factor Guideline Social Surroundings (2023)
- Instructions on how to prepare an environmental review document (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)
- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Environmental Protection (Noise) Regulations 1997
- Guideline for managing the impacts from dust and associated contaminants from land development sites, contaminated sites remediation and other related activities. Department of Water and Environmental Regulation (2011)
- Mine sites, exploration camps and construction villages Scoping Tool: Public Health Considerations, Department of Health (2011)
- Fortescue Marsh Management Strategy 2018-2024, Department of Biodiversity, Conservation and Attractions (2018)

• The Interim Engaging with First Nations People and Communities on Assessments and Approvals under Environment Protection and Biodiversity Conservation Act 1999 (interim guidance) (2023)

Landforms

EPA policy and guidance

- Statement of Environmental Principles, Factors and Objectives (2023)
- Instructions on how to prepare an environmental review document (2021)
- Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (2023)
- Environmental Factor Guideline Landforms (2018)
- Cumulative environmental impacts of development in the Pilbara region, s16(e) of the Environmental Protection Act, 1986 (2014)
- Environmental and water assessments relating to mining and mining-related activities in the Fortescue Marsh management area, s16(e) of the Environmental Act 1986 (2013)

Other policy and guidance

- Pilbara Conservation Strategy, Government of Western Australia (2018)
- Plan for Our Parks (2023)