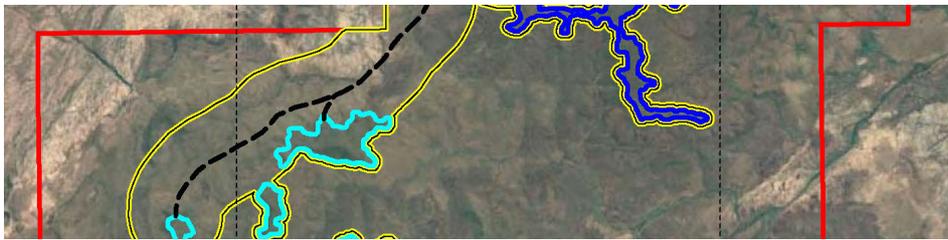


**VBX**

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# **Wuudagu Bauxite Project**



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**Environmental Scoping Document**

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**March 2021**



# VBX

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### Quality Checking History

Version: Rev 0 Director review: R. de Franck (VBX)

Version: Rev 0 Format review: G. Humphreys (Biota)

Approved for issue: R. de Franck (VBX)

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# Environmental Scoping Document

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# 1.0 Introduction

<b>Proposal name:</b>	Wuudagu Bauxite Project
<b>Proponent:</b>	VBX Limited
<b>Assessment number:</b>	2237
<b>Location:</b>	Approximately 15 km west of Kalumburu, in the northeast of Western Australia
<b>Local Government Area:</b>	Shire of Wyndham-East Kimberley.
<b>Public review period:</b>	Environmental Scoping Document – 2 weeks Environmental Review Document – 8 weeks
<b>EPBC Act Reference No.:</b>	EPBC 2019/8606

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

The purpose of this document is to define the form, content, timing and procedure of the environmental review, required by s. 40(3) of the EP Act. VBX Limited (‘the proponent’) has prepared this Environmental Scoping Document (ESD) according to the procedures in the EPA’s *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016* (Procedures Manual).

## 1.1 Form

The EPA requires that the form of the report on the environmental review required under s. 40 (Environmental Review Document (ERD)) be completed according to its Environmental Review Document template.

## 1.2 Content

The EPA requires that the environmental review includes the content outlined in Sections 2.0 to 6.0 of this ESD.

## 1.3 Timing

Table 1.1 sets out the timeline for the assessment of the proposal agreed between the proponent and the EPA.

**Table 1.1: Assessment timeline.**

<b>Key Assessment Milestones</b>	<b>Completion Date</b>
Proponent submits first draft of Environmental Scoping Document (ESD)	July 2020
EPA provides comment on first draft of Environmental Scoping Document	February 2021
Proponent submits revised draft Environmental Scoping Document	February 2021
EPA authorises release of Environmental Scoping Document for public review	February 2021
EPA approves Environmental Scoping Document	March 2021
Proponent submits first draft Environmental Review Document	July 2021

Key Assessment Milestones	Completion Date
EPA and DAWE provide comment on first draft Environmental Review Document (6 weeks from receipt of ERD)	August 2021
Proponent submits revised draft Environmental Review Document	September 2021
EPA authorises release of Environmental Review Document for public review (2 weeks from EPA approval of ERD)	September 2021
Proponent releases Environmental Review Document for public review for 8 weeks	September 2021
Close of public review period	November 2021
EPA provides Summary of Submissions (3 weeks from close of public review period)	December 2021
Proponent provides Response to Submissions	January 2022
EPA and DAWE review the Response to Submissions (4 weeks from receipt of Response to Submissions)	February 2022
EPA prepares draft assessment report and completes assessment (6 weeks from EPA accepting Response to Submissions)	March 2022
EPA finalises assessment report (including two weeks consultation on draft conditions) and gives report to Minister (6 weeks from completion of assessment)	April 2022

## 1.4 Procedure

The EPA requires the proponent to undertake the environmental review according to the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016 and the Procedures Manual*.

The ESD will be available on the EPA website ([www.epa.wa.gov.au](http://www.epa.wa.gov.au)) upon endorsement and will be appended to the ERD.

## 1.5 Assessment as an Accredited Assessment

The proposal has been referred and determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) and is being assessed as an accredited assessment.

The relevant matters of national environmental significance (MNES) for this proposal are:

- National Heritage places (sections 15B and 15C);
- Listed threatened species and communities (sections 18 and 18A);
- Listed migratory species (sections 20 and 20A); and
- Commonwealth marine areas (sections 23 and 24A).

This ESD includes work required to be carried out and reported on in the ERD in relation to MNES. The Environmental Review Document will also address the matters in Schedule 4 of the *Environment Protection and Biodiversity Conservation Regulations 2000*. MNES that may be impacted by the proposal will be identified and the potential impacts on these matters addressed within each relevant preliminary environmental factor identified in Table 3.1 (presented in Section 3.0).

A dedicated EPBC Act chapter will be included in the ERD that discusses impacts to MNES and identifies suitable mitigation and management measures. Proposed offsets to address any significant residual impacts on MNES will also be discussed in the ERD in a

dedicated chapter, addressing both Commonwealth and State policy and guidance. The EPBC Act requirements will make reference to:

- DSEWPaC (2012). *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*. Department of Sustainability, Environment, Water, Population and Communities. Australian Government, Canberra.
- DSEWPaC (2012). *Offsets Assessment Guide*. Department of Sustainability, Environment, Water, Population and Communities. Australian Government, Canberra, Australia.
- DSEWPaC (2013). *How to Use the Offsets Guide*. Department of Sustainability, Environment, Water, Population and Communities. Australian Government, Canberra, Australia.

Information required for any offsets that may be required in relation to MNES will potentially include:

- the type of offset proposed
- extent to which the proposed offset actions correlate to, and adequately compensate for, the residual significant impacts of the proposed action on the protected matter;
- suitability of the location of any proposed offset site for the protected matter;
- conservation gain to be achieved by the offset i.e. positive management;
- strategies that improve the site or avert the future loss, degradation or damage of the protected matter;
- time it will take to achieve the proposed conservation gain;
- level of certainty that the proposed offset will be successful;
- current land tenure of any proposed offset and the method of securing; and
- managing the offset for the life of the impact.

The ERD will include a discussion of the environmental history of the proponent, including any history of noncompliance with Australian environmental regulation.

In deciding whether or not to approve the proposed action under the EPBC Act, the Federal Minister of the Environment and Energy must consider economic and social matters. The ERD will include an appendix detailing the social and economic costs and/or benefits of undertaking the proposed action, including, but not limited to the basis of any estimation of costs and/or benefits, and potential employment opportunities.

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## 2.0 The Proposal

The subject of this ESD is the proposal by VBX Limited ('the proponent') to develop the Wuudagu Bauxite Project ('the proposal'). The proposal is to construct and operate a bauxite mining and export operation, including product load-out via barging and deep water transshipping, at a site approximately 15 km west of Kalumburu, in the northeast of Western Australia (Figure 2.1). The development envelope and indicative footprint of the proposal are delineated in Figure 2.2.

The key characteristics of the proposal are set out in Table 2.1 and Table 2.2. The key proposal characteristics may change as a result of the findings of studies and investigations conducted for the environmental review and the application of the mitigation hierarchy by the proponent. The anticipated life of the proposed project is expected to be approximately 10 years.

**Table 2.1: Summary of the proposal.**

<b>Proposal Title</b>	Wuudagu Bauxite Project
<b>Proponent</b>	VBX Limited
<b>Short Description</b>	Construct and operate a 6 Mtpa bauxite mining and export operation approximately 15 km to the west of Kalumburu in the Shire of Wyndham-East Kimberley. Bauxite will be trucked from two primary mining areas totalling approximately 1,465 ha, along a haulage route of approximately 30 km to a beneficiation plant inland of Guy Point. An upgraded bauxite product will be loaded onto barges via conveyor, for transshipping to larger vessels offshore.

**Table 2.2: Location and proposed extent of physical and operational elements.**

<b>Element</b>	<b>Location</b>	<b>Proposed Extent</b>
<b>Physical Elements</b>		
Mining areas	Figure 2.2	Clearing of no more than 1,465 ha
Haul road	Figure 2.2	Clearing of no more than 400 ha
Beneficiation plant	Figure 2.2	Clearing of no more than 17 ha
Conveyor	Figure 2.2	Clearing of no more than 7 ha
Onshore load-out facility	Figure 2.2	Clearing of no more than 2 ha
Marine load-out facility	Figure 2.2	Disturbance of no more than 3 ha of seabed
Bore field and power generation facility	To be confirmed (nominal on Figure 2.2)	Clearing of no more than 35 ha
Accommodation camp	Figure 2.2	Clearing of no more than 20 ha
<b>Operational Elements</b>		
Water supply	To be confirmed (nominal on Figure 2.2)	Abstraction of no more than 1,095 m <sup>3</sup> /day of groundwater from a yet to be defined bore field within the development envelope

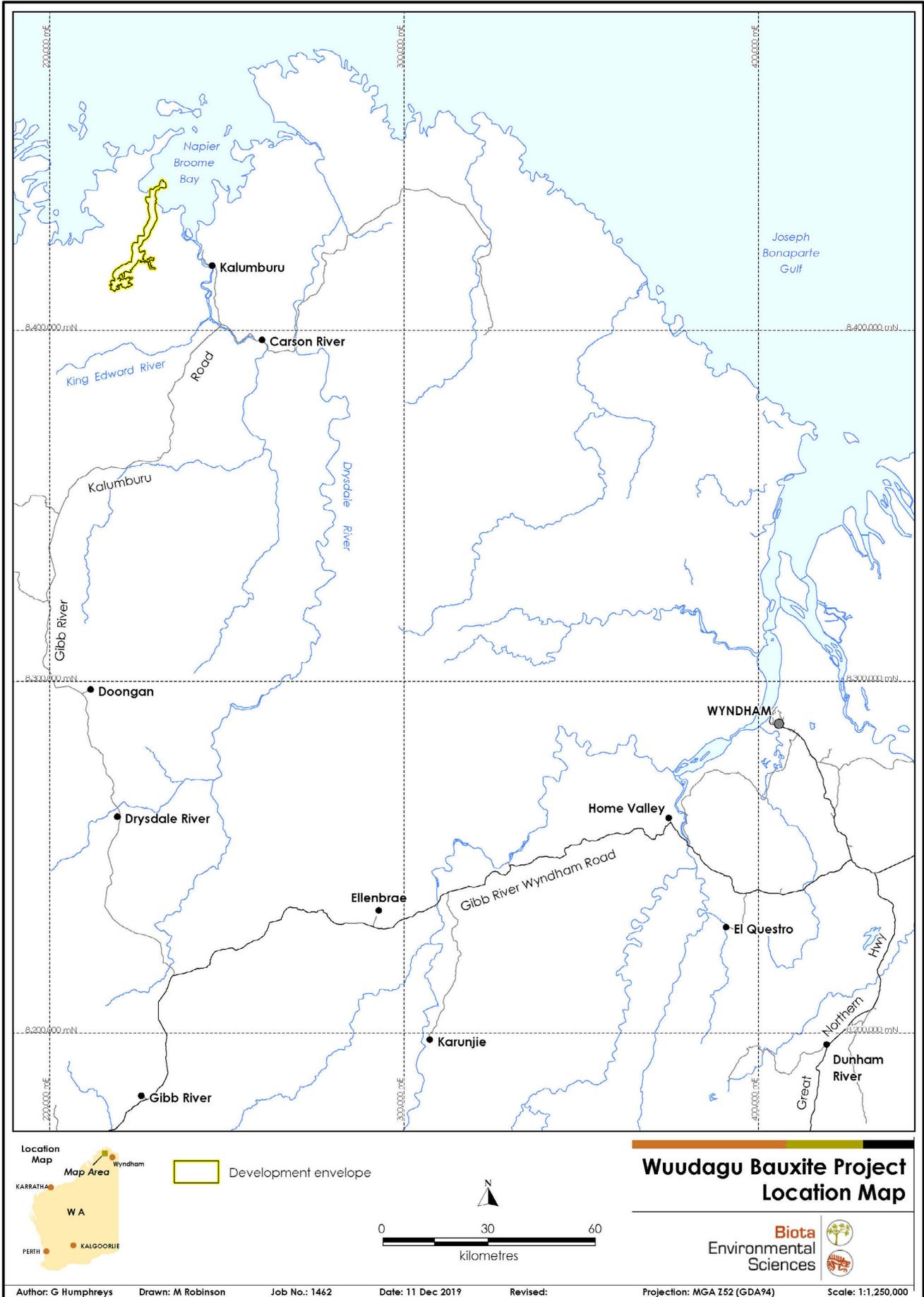


Figure 2.1: Location map for the proposal.

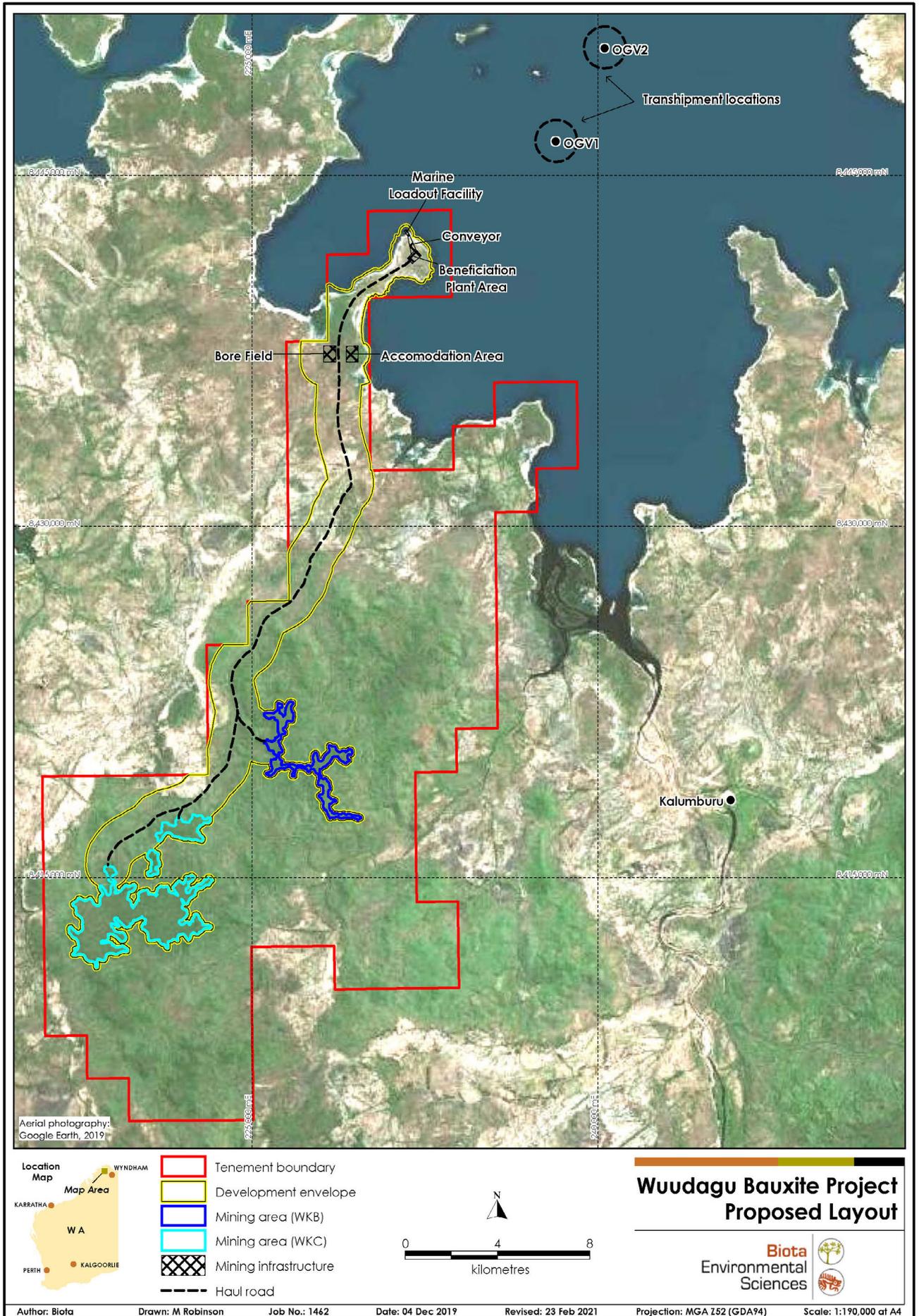


Figure 2.2: Proposal development envelope, footprint and conceptual design.

The proposal consists of the following components:

- **Mining Areas** – Comprising two zones: WB and WC (including satellite areas WCN and WCNN). Mining will occur by surface mining methods under minimal overburden with loading onto trucks for haulage to the beneficiation plant. Current mining depths are expected to average 4 m below ground level and will not intersect the water table.
- **Haul Road** – Construction of up to 35 km of haul roads with a width of 100 m, running from the mining areas to a beneficiation plant inland of Guy Point. The road is expected to be constructed through a combination of cut and fill methods and the utilisation of borrow pits from along the route.
- **Beneficiation Plant** – Mined bauxite will be hauled by truck to the beneficiation plant, where the material will be crushed, and clay impurities will be removed using water. Reject water from the plant will be filtered and recycled in the beneficiation process, with the solid clay material trucked back to mined out areas. The waste management and power generation facilities will preferably be located in the vicinity of the beneficiation plant and accommodation camp.
- **Conveyor and Marine Loadout Facility** – The upgraded bauxite product will be transported by conveyor to a marine load out facility extending from the northern limit of Guy Point. The conveyor will be situated within a corridor approximately 50 m wide and 1 km in length before it reaches a jetty at the coast. The jetty will be a pile and truss structure, extending approximately 100 m from the shore. A materials offloading facility, including fuel bunkering, will be constructed adjacent to the marine loading facility.
- **Transshipping** – Loaded barges will transport the product to larger vessels offshore. The product will then be transhipped from the barges to larger vessels for shipping to export markets. No permanent mooring point will be required at the transshipment location where vessels will anchor in a designated area.
- **Other Associated Infrastructure** – The proposal will also include the construction and operation of other support infrastructure, comprising:
  - an accommodation camp for up to 250 people;
  - waste management facilities comprising recycling, combustion, landfill and septic;
  - a bore field (envisaged as up to 1,095 m<sup>3</sup>/day capacity) to provide water for the beneficiation plant, site dust suppression and the project workforce;
  - a power generation facility (envisaged as up to 6 MVA capacity); and
  - a power distribution network from the power generation facility to the accommodation camp, bore field, beneficiation plant, conveyor and marine loadout facility. To be located along the haul road.

Once initial mining is underway and pits are established, clay material that is removed during product beneficiation will be directly returned into mined areas, removing the need for dedicated waste storage facilities to be constructed. Additionally, stockpiled overburden and soil material will be returned to the mined areas for progressive rehabilitation with existing flora species. Rehabilitation and closure planning will form an early component of all operational planning for the mining areas.

### 3.0 Preliminary Key Environmental Factors and Required Work

The preliminary key environmental factors for the environmental review are:

- Benthic Communities and Habitat;
- Coastal Processes;
- Marine Environmental Quality;
- Marine Fauna;
- Flora and Vegetation;
- Terrestrial Environmental Quality;
- Terrestrial Fauna;
- Inland Waters;
- Air Quality; and
- Social Surroundings.

In addition, the ERD will address cumulative impacts, though given the location of the development envelope and the lack of existing and foreseeable contextual impacts, this is not anticipated to be a significant consideration for the environmental review.

Wunambal Gaambera people have adopted and authorise Wunambal Gaambera Aboriginal Corporation (WGAC) to implement their Healthy Country Plan that has ten integrated cultural and natural targets in the use of, and to look after, the sustained health of Wunambal Gaambera Country. The proponent and WGAC will be assessing impacts to these targets in conjunction with the environmental review.

Table 3.1 outlines the work required for each preliminary key environmental factor and contains the following elements for each factor:

- EPA factor and EPA objective for that factor;
- Relevant activities – the proposal activities that may have a significant impact on that factor;
- Potential impacts and risks to that factor;
- Required work for that factor; and
- Relevant policy and guidance – EPA (and other) guidance and policy relevant to the assessment.

**Table 3.1: Preliminary key environmental factors and required work.**

<b>Benthic Communities and Habitat</b>	
EPA objective	To protect benthic communities and habitats (BCH) so that biological diversity and ecological integrity are maintained.
Relevant activities	Construction of marine loadout facilities, anchoring at the transshipment point, vessel movements. Possible surface water drainage treatments.
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Direct removal of BCH (&lt;3 ha) due to construction of marine loadout facilities.</li> <li>• BCH may also be impacted due to anchoring at the transshipment point.</li> <li>• Indirect impacts to BCH due to turbidity associated with vessel movements or surface water drainage.</li> </ul>
Required work	1. Present the findings of an options analysis undertaken to determine the location of the marine loadout facilities and the transshipment anchorage point.

	<ol style="list-style-type: none"> <li>2. Demonstrate how the transshipment anchorage area has been located to avoid or minimise impacts to BCH</li> <li>3. Map the marine loadout facilities and the transshipment anchorage point and identify all potential environmental risks and pressures and address potential direct and indirect impacts/implications of the proposal.</li> <li>4. Map associated vessel movements, surface water drainage inputs and jetty pile locations.</li> <li>5. Present the findings of a desktop review, satellite imagery and marine seafloor survey of BCH types and spatial extents and any temporal variations to identify and describe the different types of benthic communities and habitats.</li> <li>6. Produce comprehensive mapping (at an appropriate scale) of the BCH types overlain with the marine loadout facilities and the transshipment anchorage area, including indirect impacts associated with vessel movements if relevant, and product spillage to quantify the loss of BCH to occur as a result of the proposal.</li> <li>7. A prediction of the extent of any potential indirect effects, including on adjacent BCH, with predicted recovery times.</li> <li>8. Describe the proposed management and mitigation measures to be implemented, including an assessment of their effectiveness and monitoring after construction, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks are acceptable.</li> <li>9. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), and the Commonwealth Environmental Offsets Policy (DSEWPaC 2012a) and guide.</li> <li>10. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines and Commonwealth Policy where the impact is for MNES. The area of extent of any significant residual impacts will also be quantified.</li> <li>11. An assessment of any proposed offsets against the WA Environmental Offsets Policy.</li> <li>12. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</li> </ol>
<p>Relevant policy and guidance</p>	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Benthic Communities and Habitats (EPA 2016a)</li> <li>• Technical Guidance - Protection of Benthic Communities and Habitats (EPA 2016b)</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018).</li> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (Department of Sustainability, Environment, Water, Population and Communities, 2012).</li> <li>• Commonwealth Offsets Assessment Guide (DSEWPaC 2013).</li> <li>• North Kimberley Marine Park Joint management plan (DPaW 2016).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Uunguu Indigenous Protected Area: Wundaagu (Saltwater) Country, Plan of Management (Wunambal Gaambera Aboriginal Corporation 2017).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<b>Coastal Processes</b>	
EPA objective	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected.
Relevant activities	<ul style="list-style-type: none"> <li>• Permanent placement of marine load out facility (Trestle jetty)</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Changes in local erosion/deposition patterns.</li> <li>• Changes to local coastline.</li> <li>• Changes to nearshore currents.</li> </ul>

Required work	<p>13. Obtain bathymetric, topographic, wind and tidal data to validate a hydrodynamic model of the Napier Broome Bay focused on the project area.</p> <p>14. Determine the best location for a barge channel and cyclone moorings in order to minimise impacts on coastal processes and avoid the requirement for maintenance dredging.</p> <p>15. Assess potential impacts on sediment movement by coastal infrastructure.</p> <p>16. Assess potential impacts on sediment deposition zones and any risk of impacts on mangroves.</p>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Coastal Processes (EPA 2016c).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000).</li> <li>• North Kimberley Marine Park Joint management plan (DPaW 2016).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Unguu Indigenous Protected Area: Wundaagu (Saltwater) Country, Plan of Management (Wunambal Gaambera Aboriginal Corporation 2017).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<b>Marine Environmental Quality</b>	
EPA objective	To maintain the quality of water, sediment and biota so that environmental values are protected.
Relevant activities	Construction activities that may affect marine quality include piling and on-site surface water management. Operational activities that may impact marine quality are largely associated with vessels.
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Temporary periods of elevated suspended sediments (turbidity) and light reduction during construction.</li> <li>• Localised, but ongoing elevation in water turbidity due to vessel movements, and surface water drainage.</li> <li>• Localised and short-term alterations in marine nutrient levels.</li> <li>• Potential for disturbance of acid sulphate soils.</li> <li>• Increased risk of marine contamination from toxic antifouls on ship hulls and hydrocarbon spills.</li> </ul>
Required work	<p>17. Risks of pollution of water due to product spillages during barge loading and deep water transhipping.</p> <p>18. Collect adequate baseline water quality, sediment quality and benthic community data to document background marine environmental quality (including spatial and temporal variation) within the receiving marine environment. Baseline data acquisition will be adequate for the derivation of environmental quality criteria for indicators relevant to any spillage e.g. water, sediment and/or infauna quality indicators.</p> <p>19. An Environmental Quality Plan (EQP) will be developed that will identify the environmental values to be protected and spatially define the environmental quality objectives, including levels of ecological protection that will be achieved during construction and operations for the marine loadout facilities and transhipment anchorage area.</p> <p>20. Conduct laboratory analysis of the upgraded bauxite product to determine the presence of any contaminants and level of bioavailability.</p> <p>21. Describe and map the key sensitive biological receptors to be potentially affected by any spillages. Provide a figure showing the receptors as an overlay on the EQP.</p> <p>22. Undertake a Product Spillage Risk Assessment and develop an appropriate Product Spillage Management Plan to prevent or minimise impacts to environmental quality and BCH.</p> <p>23. Undertake a Hydrocarbon Spill Risk Assessment and develop an appropriate Hydrocarbon and Spill Management Plan.</p> <p>24. Quantify and characterise all stormwater and wastewater discharges to the marine environment during construction and operation.</p>

	<p>25. Present the findings of a desktop review of baseline data to document background marine environmental quality (including spatial and temporal variation) within the receiving marine environment.</p> <p>26. Map the marine loadout facilities and the transshipment anchorage point and address potential impacts/implications of the proposal.</p> <p>27. Map associated vessel movements.</p> <p>28. Describe the proposed management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks to marine environmental quality are acceptable.</p> <p>29. Develop a Marine Environmental Quality Monitoring and Management Plan that includes management measures and objectives that will be implemented to ensure residual impacts (direct and indirect) are not greater than predicted</p> <p>30. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
<p>Relevant policy and guidance</p>	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Marine Environmental Quality (EPA 2016d).</li> <li>• Technical Guidance - Protecting the Quality of Western Australia's Marine Environment (EPA 2016e).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000).</li> <li>• North Kimberley Marine Park Joint management plan (DPaW 2016).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Uunguu Indigenous Protected Area: Wundaagu (Saltwater) Country, Plan of Management (Wunambal Gaambera Aboriginal Corporation 2017).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<p><b>Marine Fauna</b></p>	
<p>EPA objective</p>	<p>To protect marine fauna so that biological diversity and ecological integrity are maintained.</p>
<p>Relevant activities</p>	<p>Piling, vessels and vessel movements. The area of direct habitat loss is considered negligible and unlikely to affect local populations of marine fauna.</p>
<p>Potential impacts and risks</p>	<ul style="list-style-type: none"> <li>• Short-term and localised disturbance to any migratory marine fauna habitat (e.g. marine turtle nesting habitat or benthic foraging habitat) through direct disturbance.</li> <li>• Behavioural impacts on marine fauna resulting from any light spill, habitat modification or marine noise that might arise from the proposal.</li> <li>• The risk of vessel collisions with marine fauna arising from the increased vessel movements.</li> <li>• Changes in behaviour due to the increased presence of vessels and vessel movements;</li> <li>• Introduction and spread of marine pests and pathogens.</li> </ul>
<p>Required work</p>	<p>31. Present the findings of a desktop review of baseline data and stakeholder consultation with Traditional Owners to document marine fauna within the receiving marine environment, including identification of State conservation listed and culturally significant species, spatial and temporal usage patterns, critical habitats and identification of suitable environmental windows when disturbance to marine fauna would be minimised.</p> <p>32. Discuss the likely presence of significant, or MNES, marine fauna and other marine fauna species of conservation significance within/near the project area as identified in the desktop review, including at minimum:</p> <ol style="list-style-type: none"> <li>a. information on the abundance, distribution, ecology and habitat preferences of the listed species;</li> <li>b. information on the conservation value of each habitat type (e.g. breeding, migration, feeding, resting, inter-nest, etc.) from a local and regional perspective;</li> </ol>

	<ul style="list-style-type: none"> <li>c. if a population is present, its size and the importance of the population from a local and regional perspective;</li> <li>d. an assessment of the risk of impact to any listed species as a result of project activities;</li> <li>e. for any impact identified, appropriate mitigation/management measures to reduce the level of impact; and</li> <li>f. baseline information and mapping of local and regional occurrences.</li> </ul> <ol style="list-style-type: none"> <li>33. Undertake marine fauna surveys, if adequate baseline information is not available through the desktop review and stakeholder consultation.</li> <li>34. Map the marine loadout facilities and the transshipment anchorage point and address potential impacts/implications of the proposal.</li> <li>35. Map associated vessel movements, and surface water drainage.</li> <li>36. Assess the potential risk of introduced marine pests.</li> <li>37. Determine the direct, indirect and cumulative impacts of the proposal to marine fauna and the significance of these impacts.</li> <li>38. Describe the proposed monitoring, management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks to marine fauna are acceptable, and that the proposal is not inconsistent with relevant recovery plans and threat abatement plans.</li> <li>39. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), and the Commonwealth Environmental Offsets Policy (DSEWPaC 2012a).</li> <li>40. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines and Commonwealth Policy where the impact is for MNES. The area of extent of any significant residual impacts will also be quantified.</li> <li>41. An assessment of any proposed offsets against the six offsets principles in the WA Environmental Offsets Policy.</li> <li>42. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</li> </ol>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Marine Fauna (EPA 2016f).</li> <li>• Environmental Factor Guideline: Benthic Communities and Habitats (EPA 2016a)</li> <li>• Technical Guidance - Protection of Benthic Communities and Habitats (EPA 2016b).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Marine bioregional plan for the North-west Marine Region (DSEWPaC 2012b).</li> <li>• Aquatic Biosecurity Policy 19 January 2017 (Department of Fisheries 2017).</li> <li>• Relevant Commonwealth recovery plans, conservation advice and/or threat abatement plans.</li> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (Department of Sustainability, Environment, Water, Population and Communities, 2012a).</li> <li>• National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (Department of the Environment and Energy 2020).</li> <li>• North Kimberley Marine Park Joint management plan (DPaW 2016).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Unguu Indigenous Protected Area: Wundaagu (Saltwater) Country, Plan of Management (Wunambal Gaambera Aboriginal Corporation 2017).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<b>Flora and Vegetation</b>	
EPA objective	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.
Relevant activities	<ul style="list-style-type: none"> <li>• Clearing of vegetation in the construction footprint to accommodate the mining areas and proposal infrastructure.</li> <li>• Deployment and use of plant and equipment into the development envelope during construction and operations.</li> <li>• Groundwater abstraction.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Clearing of a total of 1,946 ha of vegetation within the 8,435 ha development envelope to accommodate the proposal infrastructure and mining areas.</li> <li>• Potential direct and indirect impacts to significant flora species and ecological communities (including direct loss during clearing, surface hydrology changes, groundwater changes, sediment transport changes).</li> <li>• Weed introduction and spread during construction and operations.</li> </ul>
Required work	<p>43. Undertake Detailed vegetation surveys within proposed areas of terrestrial disturbance/clearing and areas of potential indirect impacts. Surveys are to identify and characterise flora and vegetation in accordance with EPA policy and meet the requirements of Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment.</p> <p>44. Conduct an appropriate analysis of vegetation communities to establish local and regional conservation significance of each vegetation community.</p> <p>45. Conduct targeted sampling for any significant species and communities present, or assessed as potentially present, in the survey area, including, but not limited to, threatened and priority ecological communities, potential groundwater dependent ecosystems, threatened and priority flora, potentially range restricted flora and new flora species.</p> <p>46. Determine the direct, indirect and cumulative impacts of the proposal to flora and vegetation and the significance of these impacts.</p> <p>47. Demonstrate measures taken to reduce impacts in the proposal in accordance with the mitigation hierarchy (Government of Western Australia 2014).</p> <p>48. Describe the proposed monitoring, management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks are acceptable. This will include the requirement to develop environmental management plans for both the construction and operational phases of the proposal addressing management of weeds, feral fauna, fire management and rehabilitation.</p> <p>49. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), and the Commonwealth Environmental Offsets Policy (DSEWPaC 2012a).</p> <p>50. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines and Commonwealth Policy where the impact is for MNES. The area of extent of any significant residual impacts will also be quantified.</p> <p>51. An assessment of any proposed offsets against the six offsets principles in the WA Environmental Offsets Policy.</p> <p>52. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Flora and Vegetation (EPA 2016g).</li> <li>• Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016h).</li> <li>• Environmental Protection Bulletin 20 - Protection of naturally vegetated areas through planning and development (EPA 2013).</li> <li>• Guidance Statement 6 – Rehabilitation of Terrestrial Ecosystems (EPA 2006).</li> <li>• EPA Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2018a).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> </ul>

	<ul style="list-style-type: none"> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (Department of Sustainability, Environment, Water, Population and Communities, 2012).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> <li>• Instructions and Form: IBSA Data Packages.</li> </ul>
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<b>Terrestrial Environmental Quality</b>	
EPA objective	To maintain the quality of land and soils so that environmental values are protected.
Relevant activities	<ul style="list-style-type: none"> <li>• Ground disturbance within the construction footprint to accommodate the mining areas and proposal infrastructure.</li> <li>• Operation of beneficiation plant and management of reject materials.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Clearing of a total of 1,946 ha of ground within the 8,435 ha development envelope to accommodate the proposal infrastructure and mining areas.</li> <li>• Potential for erosion and sediment transport during major rain events.</li> <li>• Changes to soil conditions arising from reject material disposal.</li> </ul>
Required work	<p>53. Undertake a desktop study to characterise the existing environment, considering geology, landscape setting, landforms and soils.</p> <p>54. Characterise the chemical and physical nature of the orebody and reject materials from the proposed beneficiation plant.</p> <p>55. Identify potential pathways by which terrestrial environmental quality could potentially be affected by the proposal and undertake a risk assessment addressing erosion during major rain events, surface hydrology and sediment transport.</p> <p>56. Determine the direct, indirect and cumulative impacts of the proposal to terrestrial environmental quality, and the significance of these impacts.</p> <p>57. Describe the proposed monitoring, management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure and rehabilitation, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks are acceptable.</p> <p>58. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), and the Commonwealth Environmental Offsets Policy (DSEWPaC 2012a).</p> <p>59. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines and Commonwealth Policy where the impact is for MNES. The area of extent of any significant residual impacts will also be quantified.</p> <p>60. An assessment of any proposed offsets against the six offsets principles in the WA Environmental Offsets Policy.</p> <p>61. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Terrestrial Environmental Quality (EPA 2016i).</li> <li>• EPA Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2018a).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPaC 2012a).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<b>Terrestrial Fauna</b>	
EPA objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Relevant activities	<ul style="list-style-type: none"> <li>• Clearing of fauna habitat in the construction footprint to accommodate the mining areas and proposal infrastructure.</li> <li>• Deployment and use of plant and equipment into the development envelope during construction and operations.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Clearing of a total of 1,946 ha of native vegetation within the 8,435 ha development envelope to accommodate the proposal infrastructure and mining areas.</li> <li>• Potential direct and indirect impacts on conservation significant fauna species (including direct loss or displacement of individuals during clearing or as a result of operational vehicle movements).</li> <li>• Risk of weed introduction and spread during earthworks and construction activities, modifying fauna habitats with potential flow-on effects to fauna community structure.</li> <li>• Short-term and localised disturbance to migratory shorebirds in both foraging and roosting habitats on the coast.</li> </ul>
Required work	<p>62. Undertake a desktop study to provide context to the terrestrial fauna field surveys and impact assessment.</p> <p>63. Undertake Level 2 terrestrial fauna surveys within proposed areas of terrestrial disturbance/clearing and areas of potential indirect impacts. Surveys are to identify and characterise faunal assemblages and habitats in accordance with EPA policy and EPA guidance listed under 'Relevant policy and guidance' below (EPA 2016j, 2016k, 2016l), including identification and clear mapping of fauna habitats.</p> <p>64. Targeted surveys for migratory shorebirds and their habitats in accordance with Technical Guidance: Sampling methods for terrestrial vertebrate fauna (EPA 2016j) and Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (Commonwealth of Australia 2017).</p> <p>65. Targeted sampling for conservation significant fauna species or communities present in the survey area, or identified as being potentially present in the survey area, will be completed, including, but not limited to, threatened and priority ecological communities, threatened and priority fauna, potential short-range endemic fauna, significant fauna habitats and new fauna species.</p> <p>66. Identify the likelihood of significant fauna species, or fauna species listed under the EPBC Act, occurring within/near the Development Envelope, including:</p> <ol style="list-style-type: none"> <li>a. information on the abundance, distribution, ecology, and habitat preferences of the listed species;</li> <li>b. information on the conservation value of each habitat type (e.g. breeding, migration, feeding, resting, inter-nesting etc.) from a local and regional perspective, including the percentage representation of each habitat type on site in relation to its local and regional extent;</li> <li>c. if a population of a listed species is present on the site, its size and the importance of that population from a local and regional perspective;</li> <li>d. an assessment of the risk of impact to any listed threatened species as a result of project activities;             <ol style="list-style-type: none"> <li>a. for any significant impacts identified, propose appropriate mitigation/management measures to reduce the level of impact and provide a discussion of the efficacy of these proposed mitigation/management measures;</li> <li>b. baseline information and maps identifying the above at both the site and regional levels.</li> </ol> </li> </ol> <p>67. Determine the direct, indirect and cumulative impacts of the proposal to terrestrial fauna and fauna habitats, and the significance of these impacts.</p> <p>68. Describe the proposed monitoring, management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure and rehabilitation, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks are acceptable, and that the proposal is not inconsistent with relevant recovery plans and threat abatement plans.</p>

	<p>69. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), and the Commonwealth Environmental Offsets Policy (DSEWPaC 2012a).</p> <p>70. Where significant residual impacts remain, propose an appropriate offsets package that is consistent with the WA Environmental Offsets Policy and Guidelines and Commonwealth Policy where the impact is for MNES. The area of extent of any significant residual impacts will also be quantified.</p> <p>71. An assessment of any proposed offsets against the six offsets principles in the WA Environmental Offsets Policy.</p> <p>72. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• Environmental Factor Guideline: Terrestrial Fauna (EPA 2016m).</li> <li>• Technical Guidance - Terrestrial Fauna Surveys (EPA 2016l).</li> <li>• Technical Guidance: Sampling methods for terrestrial vertebrate fauna (EPA 2016j).</li> <li>• Technical Guidance - Sampling of short range endemic invertebrate fauna (EPA 2016k).</li> <li>• EPA Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2018a).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Survey Guidelines for Australia's Threatened Mammals (DSEWPaC 2011).</li> <li>• Significant impact guidelines for 36 migratory shorebird species (EPBC Act Policy Statement 3.21) (DEWHA 2009).</li> <li>• Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (Commonwealth of Australia 2017)</li> <li>• Wildlife Conservation Plan for Migratory Shorebirds (Department of the Environment and Heritage 2006).</li> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPaC 2012a)</li> <li>• Relevant Commonwealth recovery plans, conservation advice and/or threat abatement plans.</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> <li>• Instructions and Form: IBSA Data Packages.</li> </ul>

<b>Inland Waters</b>	
EPA objective	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.
Relevant activities	<ul style="list-style-type: none"> <li>• Clearing of a total of 1,946 ha of native vegetation within the 8,435 ha development envelope to accommodate the proposal infrastructure and mining areas.</li> <li>• Abstraction of groundwater from local aquifers for the proposal bore field.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Potential for erosion and sediment transport during major rain events.</li> <li>• Lowering of the water table in the vicinity of the proposal bore field.</li> </ul>
Required work	<p>73. Undertake a desktop study to characterise the existing surface hydrology and groundwater systems of the development envelope.</p> <p>74. Undertake field investigations to validate the findings of the desktop study and develop a conceptual model of the existing surface hydrology and groundwater systems of the development envelope.</p> <p>75. Identify potential pathways by which surface water could potentially be affected by the proposal and undertake conceptual modelling of major rain events, surface hydrology and sediment transport, including any sensitive receiving surface or marine systems adjoining the development envelope.</p>

	<p>76. Identify potential pathways by which groundwater could potentially be affected by the proposed bore field and model the influence of the proposal on relevant aquifers within the development envelope.</p> <p>77. Characterise the chemical and physical nature of the orebody and reject materials from the proposed beneficiation plant.</p> <p>78. Determine the direct, indirect and cumulative impacts of the proposal to inland waters, and the significance of these impacts, including consideration of altered hydrological or hydrogeological regimes and water quality, and any impact to groundwater dependent ecosystems.</p> <p>79. Describe the proposed monitoring, management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure and rehabilitation, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks are acceptable, and that the proposal is not inconsistent with relevant recovery plans and threat abatement plans.</p> <p>80. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014).</p> <p>81. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014), and the Commonwealth Environmental Offsets Policy (DSEWPaC 2012a) and related guide.</p> <p>82. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
<p>Relevant policy and guidance</p>	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Environmental Factor Guideline: Inland Waters (EPA 2018b).</li> <li>• EPA Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2018a).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPaC 2012a)</li> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<p><b>Air Quality</b></p>	
<p>EPA objective</p>	<p>To maintain air quality and minimise emissions so that environmental values are protected.</p>
<p>Relevant activities</p>	<ul style="list-style-type: none"> <li>• Operation of plant and equipment and heavy haulage during construction and operations.</li> <li>• Operation of the beneficiation plant and the handling and storage of bulk product.</li> </ul>
<p>Potential impacts and risks</p>	<ul style="list-style-type: none"> <li>• Atmospheric emissions from exhaust from heavy equipment and product haulage.</li> <li>• Dust emissions from product handling and storage.</li> </ul>
<p>Required work</p>	<p>83. Undertake a desktop study to estimate the nature and level of atmospheric emissions generated by the proposal.</p> <p>84. Characterise the physical nature of the product and assess the risk of significant dust generation arising, including identifying any sensitive receivers.</p> <p>85. Determine the direct, indirect and cumulative impacts of the proposal to air quality, and the significance of these impacts.</p> <p>86. Describe the proposed monitoring, management and mitigation measures to be implemented, including an assessment of their effectiveness and considerations for closure and rehabilitation, to demonstrate that all reasonable and practicable avoidance and mitigation measures will be taken to ensure residual impacts and risks are acceptable, and that the proposal is not inconsistent with relevant recovery plans and threat abatement plans.</p> <p>87. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014).</p>

	<p>88. Determine and quantify any significant residual impacts by applying the Residual Impact Significance Model (page 11) and WA Offset Template (Appendix 1) in the WA Environmental Offsets Guidelines (2014).</p> <p>89. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Environmental Factor Guideline: Air Quality (EPA 2020a)(EPA 2018b).</li> <li>• EPA Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2018a).</li> </ul> <p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPac 2012a)</li> <li>• WA Environmental Offsets Policy (Government of Western Australia 2011).</li> <li>• WA Environmental Offsets Guidelines (Government of Western Australia 2014).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> </ul>

<b>Social Surroundings</b>	
EPA objective	To protect social surroundings from significant harm.
Relevant activities	<ul style="list-style-type: none"> <li>• Ground disturbance in the construction footprint to accommodate the mining areas and proposal infrastructure.</li> <li>• Disturbance in the marine environment in respect of traditional owner cultural links to marine species.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Disturbance of sites of cultural significance.</li> <li>• Prevention or change to access to a site.</li> <li>• Changes to the physical and biological attributes of the environment that could impact on sites of heritage significance.</li> </ul>
Required work	<p>90. Characterise the natural and cultural values of the West Kimberley National Heritage place, and heritage places listed under Western Australian legislation heritage and cultural values of that occur within the proposed disturbance areas and any other areas that may be indirectly impacted, to identify sites of significance and their relevance within a wider regional context.</p> <p>91. Conduct appropriate Aboriginal Heritage surveys and consultation to identify Aboriginal sites, values and/or cultural associations, noting that the site is within the Uunguu Indigenous Protected Area.</p> <p>92. Provide a description of the natural and cultural values of the West Kimberley National Heritage place and heritage places listed under Western Australian legislation that are heritage values within the Development Envelope and proposed disturbance.</p> <p>93. Assess the impacts of the proposal on the natural and cultural values of the West Kimberley National Heritage place, and heritage places listed under Western Australian legislation, as well as other relevant heritage sites and/or cultural associations as a result of implementation of the proposal.</p> <p>94. Demonstrate the application of the mitigation hierarchy to avoid and minimise impacts to social surroundings, including any considerations for closure.</p> <p>95. A prediction of the residual impacts of the proposal on heritage sites and/or cultural associations is required for direct, indirect and cumulative impacts after consideration of the mitigation hierarchy.</p> <p>96. Demonstrate and document in the ERD how the EPA's objective for this factor can be met.</p>
Relevant policy and guidance	<p><b>EPA Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• Instructions on how to prepare an Environmental Review Document (EPA 2017).</li> <li>• Statement of Environmental Principles, Factors and Objectives (EPA 2015).</li> <li>• EPA Environmental Factor Guideline: Social surroundings (EPA 2016n).</li> <li>• EPA Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans (EPA 2018a)</li> </ul>

	<p><b>Other Policy and Guidance</b></p> <ul style="list-style-type: none"> <li>• <i>Aboriginal Heritage Act 1972.</i></li> <li>• Aboriginal Heritage Due Diligence Guidelines (Department of Indigenous Affairs and Department of Premier and Cabinet 2013).</li> <li>• Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (DSEWPaC 2012a).</li> <li>• Wunambal Gaambera Healthy Country Plan – Looking after Wunambal Gaambera Country (Wunambal Gaambera Aboriginal Corporation 2010).</li> <li>• Uunguu Indigenous Protected Area: Wundaagu (Saltwater) Country, Plan of Management (Wunambal Gaambera Aboriginal Corporation 2017).</li> <li>• Sustainable Bauxite Mining Guidelines (Australian Aluminium Council 2018).</li> <li>• Engage Early - Guidance for proponents on best practice Indigenous engagement for environmental assessments under the EPBC Act (Australian Government 2016).</li> <li>• North Kimberley Marine Park Joint management plan (DPaW 2016).</li> <li>• Official Values of the West Kimberley National Heritage place.<sup>1</sup></li> </ul>
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In addition to specific consideration of each environmental factor, the ERD will also provide a holistic assessment of environmental impacts, drawing together the overall impact of the proposal on the environment and identifying any interactions amongst individual factors.

The ERD will also set out environmental offsets that may be required for any significant residual impacts in relation to the above preliminary key environmental factors, addressing both State and Commonwealth policy as detailed in the tables above.

For the EPBC controlling provisions, an overall conclusion will be provided as to the environmental acceptability of the proposal on each MNES, including:

- a discussion on the consideration with the requirements of the EPBC Act, including the objects of the EPBC Act, the principles of ecologically sustainable development and the precautionary principle;
- reasons justifying undertaking the proposal in the manner proposed, including the acceptability of the avoidance and mitigation measures; and
- if relevant, a discussion of residual impacts and any offsets and compensatory measures proposed or required for significant residual impacts on MNES, and the relative degree of compensation and acceptability.

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<sup>1</sup> [http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place\\_detail;place\\_id=106063](http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=106063)

## 4.0 Other Environmental Factors or Matters

Greenhouse Gas Emissions was initially identified as a potential key environmental factor for the environmental review. However, EPA (2020b) states that greenhouse gas (GHG) emissions from a proposal will be assessed when they exceed 100,000 tonnes per annum of scope 1 emissions: preliminary estimates for the current proposal are that that scope 1 GHG emissions will be less than 60,000 tonnes per annum. The ERD will still address the considerations for EIA relevant to GHG, setting out the basis for emissions estimates, and the application of the mitigation hierarchy and other best practice in regard to emissions reduction, which is also consistent with the best practice industry guidelines of the Australian Aluminium Council (2018).

EPA Services has identified one other environmental factors that may be relevant to the proposal and be addressed during the environmental review and discussed in the ERD, Subterranean Fauna.

With the nature of the geology and the relatively shallow depth of mining, it is unlikely that troglobitic fauna (air-breathing fauna living in cavities between the ground surface and the water table) will be significantly impacted. This fauna may still require consideration during the course of the environmental review.

Similarly, stygofauna (aquatic subterranean fauna, living in the groundwater) are at initial appraisal at relatively low risk of impact from the proposal borefield. However, this fauna will be considered as part of the environmental review, particularly in relation to the work required for the Inland Waters factor.

Should additional factors arise during the course of the assessment that are considered relevant by the EPA, then these will also be addressed in the ERD.

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## 5.0 Stakeholder Consultation

The proponent must consult with stakeholders who are affected by, or are interested in, the proposal. This includes the decision-making authorities (Section 6.0), other relevant State (and Commonwealth) government agencies and local government authorities, the local community and environmental non-government organisations.

The proponent must document the following in the ERD:

- All identified stakeholders;
- the stakeholder consultation undertaken and the outcomes, including decision-making authorities' specific regulatory approvals and any adjustments to the proposal as a result of consultation; and
- any future plans for consultation.

The proponent considers that the most important stakeholders for the proposal are the traditional owners of the land on which it will be implemented: the Wunambal Gaambera people. Recognition of this has been a core aspect of the project's development since its inception, and the proponent has been undertaking regular consultation meetings, stakeholder liaison and other community engagement, and involved traditional owner rangers in environmental impact assessment surveys and other site works, including heritage clearance aspects.

The proponent will continue this engagement with the Wunambal Gaambera people throughout the environmental review and for the life of the project, including consideration of any ethnographic, archaeological or other constraints of cultural and natural significance in the final design of the proposal. It is in part for this reason, that the Wunambal Gaambera Healthy Country Plans are specifically acknowledged in the required guidance for the preliminary key environmental factors identified in this ESD (see Section 3.0).

The ERD will include evidence:

- that the Wunambal Gaambera people have been consulted;
- demonstrating that the proponent has undertaken an Indigenous heritage values survey, and then notified and sought culturally appropriate mitigation strategies for Indigenous heritage values identified within the development envelope;
- that ensures the Wunambal Gaambera people understand the proposal and assessment processes and the potential impacts on their heritage values and places and ten Healthy Country Targets; and
- of any concerns that the Wunambal Gaambera people raised during consultation about impacts on their heritage values and ten Healthy Country Targets and how they have been addressed.

The ERD will also detail any agreements or plans proposed by the proponent to manage the Indigenous heritage values and places and any impact on the ten Healthy Country Targets, along with written confirmation from the Wunambal Gaambera people that they are satisfied with the consultation, the information provided and proposed actions to mitigate any impacts on their heritage values and ten Healthy Country Targets.

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## 6.0 Decision-making Authorities

At this stage, the EPA has identified the following decision-making authorities (DMAs) for the proposal. Additional DMAs may be identified during the assessment.

**Table 6.1: Decision-making authorities.**

<b>Decision-Making Authority</b>	<b>Relevant Legislation</b>
Minister for Lands	<i>Land Administration Act 1997</i>
Minister for Environment	<i>Conservation and Land Management Act 1984</i> <i>Biodiversity Conservation Act 2016</i> <i>Conservation and Land Management Act 1984</i>
Minister for Aboriginal Affairs	<i>Aboriginal Heritage Act 1972</i>
Minister for Water	<i>Rights in Water and Irrigation Act 1914</i>
Chief Executive Officer, Department of Water and Environmental Regulation	<i>Environmental Protection Act 1986</i>
Chief Executive Officer, Shire of Wyndham-East Kimberley	<i>Health Act 1911 and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulation 1974</i> <i>Planning and Development Act 2005</i>
Chief Executive Officer, Kimberley Ports Authority	<i>Ports Legislation Amendment Act 2014</i>
Chief Dangerous Goods Officer, Department of Mines, Industry Regulation and Safety	<i>Dangerous Goods Safety Act 2004</i>
Executive Director, Resource and Environmental Compliance Division, Department of Mines, Industry Regulation and Safety	<i>Mining Act 1978</i>

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