Australian Government
Department of the Environment

Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the **EPBC Act**) provides for the protection of the environment, especially matters of national environmental significance (**NES**). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Commonwealth Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Commonwealth Environment Minister or the Minister's delegate.) To obtain approval from the Minister, a proposed action must be referred. The purpose of a referral is to enable the Minister to decide whether your proposed action will need assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made by the person proposing to take an action if the person thinks that the action for actions that has, will have, or is likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A);
- National Heritage places (sections 15B and 15C);
- wetlands of international importance (sections 16 and 17B);
- listed threatened species and communities (sections 18 and 18A);
- listed migratory species (sections 20 and 20A);
- protection of the environment from nuclear actions (sections 21 and 22A);
- Commonwealth marine environment (sections 23 and 24A);
- Great Barrier Reef Marine Park (sections 24B and 24C);
- a water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E);
- the environment, if the action involves Commonwealth land (sections 26 and 27A), including:
    - actions taken outside Commonwealth land that are likely to have a significant impact on the environment of Commonwealth land;
    - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- the environment, if the action is taken by the Commonwealth (section 28); and
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C).

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from the Department's website:

- Submitting a referral under the EPBC Act – A fact sheet for a person proposing to take an action http://www.environment.gov.au/epbc/publications/factsheet-environment-assessment-process

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance Additional sectoral guidelines are also available.
- the Policy Statement titled Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-12-actions-or-impacting-upon-commonwealth-land-and-actions
- the Policy Statement titled Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources http://www.environment.gov.au/resource/significant-impact-guidelines-13-coal-seam-gas-and-large-coal-mining-developments-impacts
- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location) http://www.environment.gov.au/epbc/pmst/index.html

Can I refer part of a larger action?

In certain circumstances, **the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act).** If you wish to make a referral for a staged or component referral contact the Referrals Gateway (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

Is your action in the Great Barrier Reef Marine Park?

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (**GBRMP Act**). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB of the GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (**the Authority**) for the Authority to commence its permit processes as required under the *Great Barrier Reef Marine Park Regulations 1983* (**GBRMP Regulations**). If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43 of the EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from http://www.gbrmpa.gov.au/ or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379
Townsville QLD 4810
AUSTRALIA

Phone: + 61 7 4750 0700
Fax: + 61 7 4772 6093

www.gbrmpa.gov.au

What information do I need to provide?

Please complete all parts of this form to assist the Department to process your referral efficiently. If a section of the referral document is not applicable to your proposal, please enter N/A.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in blue text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the proposed action and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents. Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below five megabytes (5mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referrals Gateway (email address below) for advice. Attachments larger than five megabytes (5mb) may delay processing of your referral.

Note: The Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence. If you believe that your referral contains information that is commercial-in-confidence, you must clearly identify such information and the reason for its confidentiality at the time of making the referral. The Minister cannot be satisfied that particular information included in a referral is commercial-in-confidence unless a person demonstrates to the Minister that:

- release of the information would cause competitive detriment to the person; and
- the information is not in the public domain; and
- the information is not required to be disclosed under another law of the Commonwealth, a State or a Territory; and
- the information is not readily discoverable.

How do I pay for my referral?

From 1 October 2014, the Australian Government commenced cost recovery arrangements for environmental assessments and some strategic assessments under the EPBC Act. If an action is referred on or after 1 October 2014, then cost recovery will apply to both the referral and any assessment activities undertaken. Further information regarding cost recovery can be found on the Department's website at: http://www.environment.gov.au/epbc/publications/cost-recovery-cris

If you are an individual or a small business, you may be exempt from paying the referral fee. See Part 9 of this form for further details.

You may apply for all or part of a fee to be waived. See Part 9 of this form for further details.

Payment of the referral fee can be made using one of the following methods:

- **EFT Payments can be made to:**

  BSB: 092-009
  Bank Account No. 115859
  Amount: $7352
  Account Name: Department of the Environment.
  Bank: Reserve Bank of Australia
  Bank Address: 20-22 London Circuit Canberra ACT 2601
  Description: The reference number provided (see note below)

- **Cheque** - Payable to "Department of the Environment". Include the reference number provided (see note below), and if posted, address:

  The Referrals Gateway
  Environment Assessment Branch
  Department of the Environment

GPO Box 787
Canberra ACT 2601

- **Credit Card**

  Please contact the Collector of Public Money (CPM) directly (call (02) 6274 2930 or 6274 20260 and provide the reference number (see note below).

Note: an invoice will be raised and forwarded to you upon submission of your referral which will include the EPBC reference number for your referral.

How do I submit a referral?

Referrals may be submitted by mail or email.

Mail to:

Referrals Gateway
Environment Assessment Branch
Department of Environment
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, please also provide electronic copies of documentation (on CD/DVD or by email)..

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral in a suitable electronic document format (e.g. Microsoft Word and, if possible, PDF).
- If submitting via email, please also mail a hardcopy of the referral including copies of any attachments or supporting reports.

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment. Any person may give the Minister comments on the referral within 10 business days of publication on the Department's website.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

The proposed action would have UNACCEPTABLE impacts and CANNOT proceed

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

For more information

- call the Department of the Environment Community Information Unit on 1800 803 772 or
- visit the web site http://www.environment.gov.au/epbc

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Proposed action title:	Koolan Island Mine - Reconstruction of Seawall and Capital Dewatering of Main Pit

1 Summary of proposed action

NOTE: In addition to completing the fields below, you must also attach a map of the area affected by the action that includes the following features (if relevant): the location of the action; the approximate boundary of the areas and habitat mentioned in items 3.1 and 3.2; and to the extent practicable and relevant, the tenure of the project area of the proposed action (e.g. freehold, leasehold etc.).

It is the Department's preference that maps are provided in A4 size and that the geographic information system (GIS) vector (shapefile) dataset associated with the maps is also provided.

1.1 **Short description**

Use 2 or 3 sentences to uniquely identify the proposed action and its location. It is important clearly describe the scope of the action accurately because this description lays the basis for the assessment and approval decision-making processes. For the purposes of the EPBC Act, an action includes:

- a project; and
- a development; and
- an undertaking; and
- an activity or series of activities; and
- an alteration of any of the above.

The description should refer, as appropriate, to relevant maps.
You should obtain your own advice on whether the action you propose to refer constitutes an 'action' for the purposes of the EPBC Act.

Koolan Island, located 130 km north west of Derby in the Kimberley region of Western Australia, has a history of mining and of associated shipping, spanning more than 100 years. Koolan Iron Ore Pty Ltd (KIO) is a subsidiary of Mt Gibson Iron Ltd (MGX) and has been mining and shipping iron ore at Koolan Island since 2007 in accordance with the conditions of key environmental approvals granted for these activities under the *Environment Protection and Biodiversity Conservation (EPBC) Act* 1999 (2006/2522 and 2013/6752), the Western Australian *Environmental Protection Act 1986* (Ministerial Statement (MS) 715, as amended) and the *Mining Act 1978* (WA).

In November 2014, a failure in the engineered seawall across Arbitration Cove resulted in ocean waters inundating the Main Pit on Koolan Island. KIO is proposing to rebuild a portion of the the seawall within the existing footprint and dewater the pit inundated with ocean water in order to recommence mining.

1.2 **Latitude and longitude**

Latitude and longitude details are used to accurately map the boundary of the proposed action. If these coordinates are inaccurate or insufficient it may delay the processing of your referral.

The location of Koolan Island may be represented by the coordinates of the mining tenements the operations lie within. This matches the coordinates submitted for EPBC 2006/2522.

Mining Tenement	Latitude	Longitude
M 04/416	16°06'25.06" S	123.43'07.13" E
	16°06'39.15" S	123°43'53.70" E
	16.08'00.47" S	123.46'37.90" E
	16°08'37.28" S	123°46'38.40" E
	16°08'56.45" S	123.46'28.38" E
	16°06'44.56" S	123.43'08.55" E
M 04/417	16°06'44.56" S	123.43'08.55" E
	16°09'21.58" S	123.45'48.79" E
	16°08'52.81" S	123°44'41.76" E
	16°07'49.59" S	123.43'24.27" E
	16°07'17.70" S	123.43'03.75" E
L04/29	16°07'46.9548" S	123°46'33.9938" E
	16°07'40.8692" S	123.46'44.0235" E
	16°07'13.8651" S	123.46'46.9598" E
	16°06'59.3607" S	123.46'48.5369" E
	16°06'51.8898" S	123.46'49.3491" E
	16"06'53.2499" s	123"s47'02.73178" E
	16"07'32.0751" s	123°46'58.5171" E
	16"07'37.1316" s	123"47'01.9020" E
	16"08'13.2500" s	123"47'04.9330" E
	16"08'32.8035" s	123"47'42.6085" E
	16"08'37.7800" s	123"47'52.1981" E
	16"08'41.9295" s	123"47'49.8932" E
	16"08'49.3595" s	123"47'45.7660" E
	16"08'54.9780" s	123"47'42.6451" E
	16"08'49.0284" s	123"47'31.1797" E
	16"08'33.4340" s	123"47'01.1308" E
	16"08'58.7706" s	123"46'54.9682" E
	16"08'55.4198" s	123"46'40.2267" E
	16"08'40.2497" s	123"46'43.9186" E
	16°08'36.6078" s	123"46'44.8050" E
	16"08'26.2654" s	123"46'47.3218" E
	16"08'11.6435" s	123"46'19.1560" E
	16"08'10.8497" s	123"46'19.5972" E
	16"08'09.4408" s	123"46'17.0901" E
	16"07'57.9978" s	123"45'56.7219" E
	16"07'34.0913" s	123"46'11.0979" E

The Protected Matters Search Tool may provide assistance in determining the coordinates of the project area of the proposed action.

If the area is less than 5 hectares, provide the location as a single pair of latitude and longitude references. If the area is greater than 5 hectares, provide bounding location points.

There should be no more than 50 sets of bounding location coordinate points per proposed area.

Bounding location coordinate points should be provided sequentially in either a clockwise or anticlockwise direction.

If the proposed action is linear (e.g. a road or pipeline), provide coordinates for each turning point.

Also attach the associated GIS-compliant file that delineates the proposed referral area. If the area is less than 5 hectares, please provide the location as a point layer. If greater than 5 hectares, please provide a polygon layer. If the proposed action is linear (e.g. a road or pipeline) please provide a polyline layer (refer to GIS data supply guidelines at Attachment A).

Do not use AMG coordinates.

1.3 **Locality and property description**

Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

KIO's operations are located on Koolan Island, approximately 130 kilometres north of Derby, Western Australia. The island is separated from the mainland by a 1km wide body of water known as The Canal (Refer Figure 1).

Open pit mining on Koolan Island commenced in 1907 with a substantial mining operation established on the island by BHP in 1965, continuing until 1993 when the mine was closed and decommissioned. In 2007, mining and associated activities on the island including operation of a wharf and ship loading facility, recommenced.

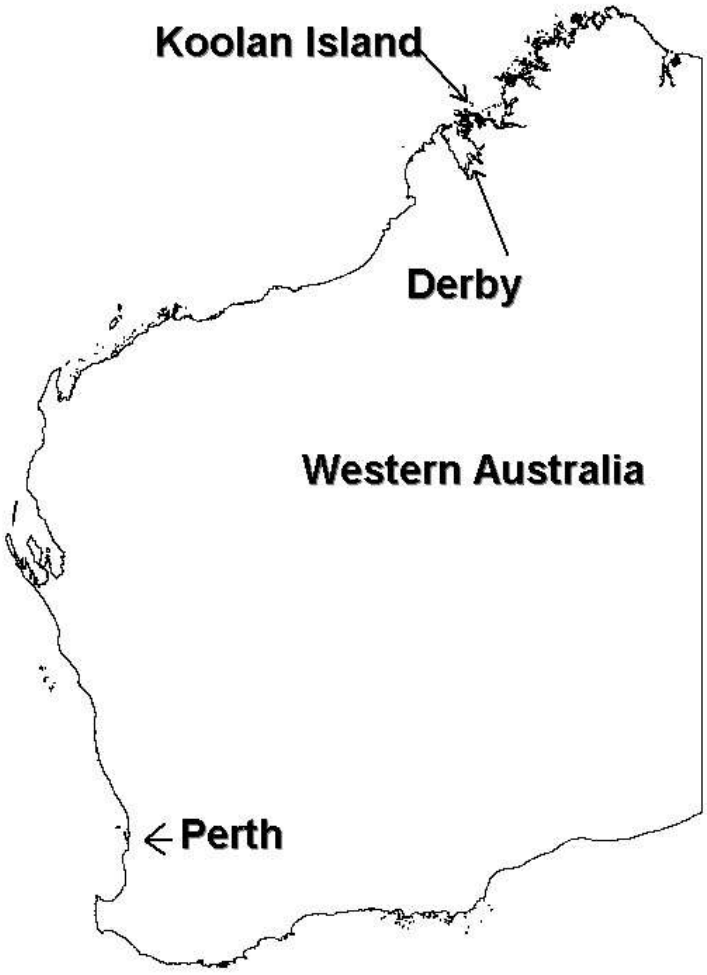


Figure 1 - Location of Koolan Island in Western Australia

1.4	**Size of the development footprint or work area (hectares)**	The proposed development would reconstruct a portion of the engineered seawall within the existing disturbance footprint as approved by EPBC 2006/2522. In order to undertake dry floor mining, water (seawater quality) would be pumped out of the mining Main Pit into the adjacent sea. The proposed development area is contained within Mining Lease M04/417 (Refer Figure 2).
1.5	**Street address of the site** 7	The proposal does not have a street address. It is located on Koolan Island, Western Australia in the Shire of Derby-West Kimberley.

1.6 **Lot description**

Describe the lot numbers and title description, if known.

The proposal is located within Mining Lease M04/417 which overlies unallocated Crown land on Koolan Island, Western Australia and the adjoining subtidal land of part of The Canal (Refer Figure 2).

1.7 **Local Government Area and Council contact (if known)**

If the project is subject to local government planning approval, provide the name of the relevant council contact officer.

Koolan Island is in the Shire of Derby – West Kimberley, Western Australia.

1.8 **Time frame**

Specify the time frame in which the action will be taken including the estimated start date of construction/operation.

The schedule for approval (including state based approvals) and construction activities is shown by table below:

TimeFrame	Activity
September – December 2016	Submit Mining Proposal Addendum under the Mining Act SubmitS45C under the EP Act Update Rleevant Management Plans
March –May 2017	Earthworks for rebuild of the seawall
May – December 2017	Grout Wall within the seawall
December –June 2018	Dewatering of Main Pit
Quarter 3 2018	Recommence mining of ore from Main Pit

1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered which are not proposed?	☑	No
			Yes, please also complete section 2.2
1.10	**Alternative time frames, locations or activities** Does the proposed action include alternative time frames, locations or activities?	☑	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3 and 5 (where relevant).
1.11	**Commonwealth, State or Territory assessment** Is the action subject to other a Commonwealth, State or Territory environmental impact assessment?		No
		☑	Yes, please also complete section 2.5
1.12	**Component of larger action** Is the proposed action a component of a larger action?		No
		☑	Yes, please also complete section 2.7
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region?		No
		☑	Yes, provide details:
1.14	**Australian Government funding** Has the person proposing to take the action received any Australian Government grant funding to undertake the proposed action?	☑	No
			Yes, please also complete section 2.8
1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	☑	No
			Yes, please also complete section 3.1 (h), 3.2 (e)

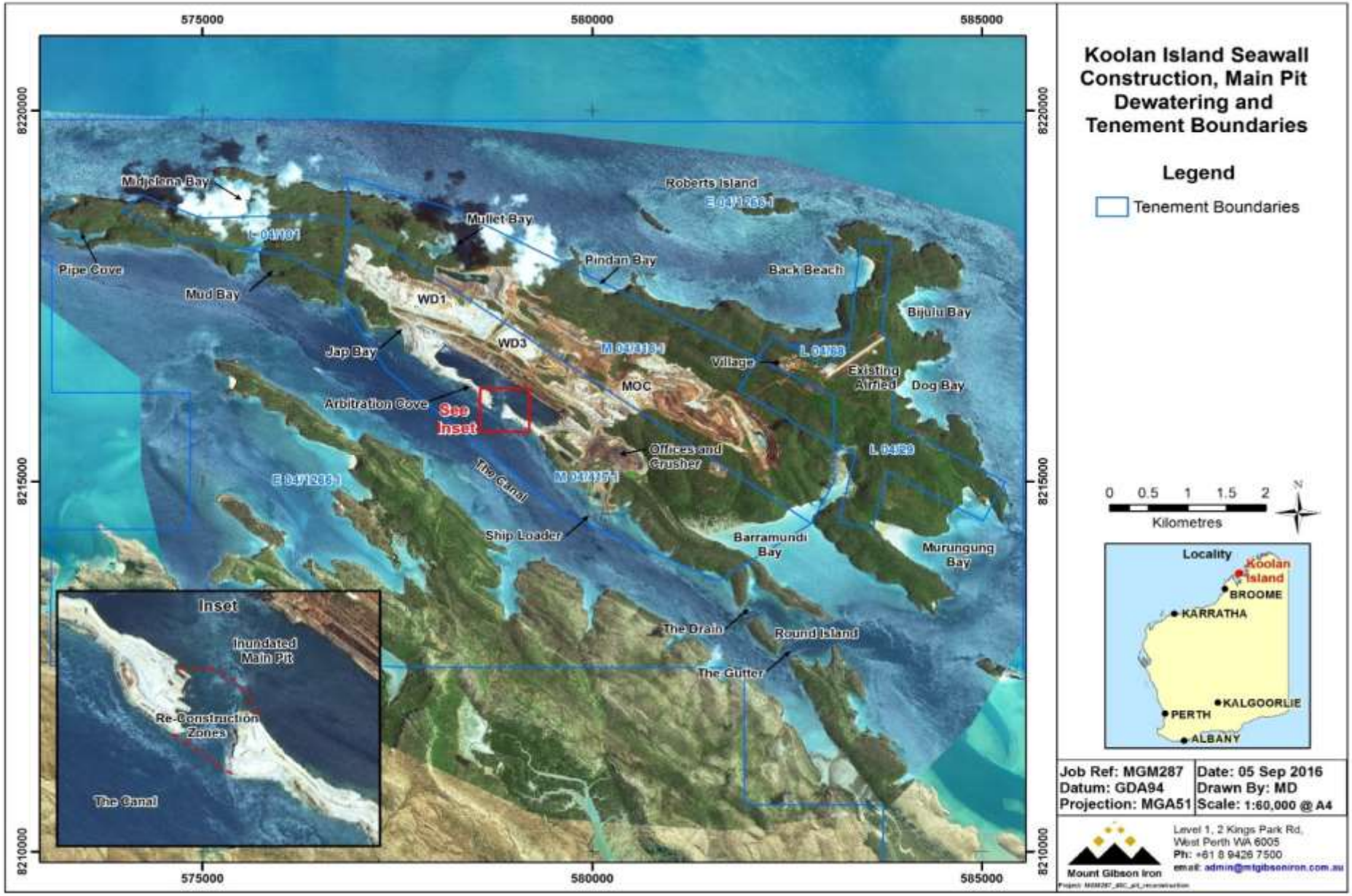


Figure 2: Koolan Island Operational Layout and Area of Seawall Re-build and Main Pit Dewatering. See Inset Area.

2 Detailed description of proposed action

NOTE: You **must** complete each of the sections below. Please ensure that the description is complete and includes all components and activities associated with the action. If relevant, each of the matters below need to be addressed in respect of each alternative location, time frame, or activity that is identified as part of the description. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.7.

2.1 Description of proposed action

Please provide a detailed description outlining all activities and aspects of the proposed action and reference figures and/or attachments, as appropriate.

Partial Reconstruction of the Seawall at Arbitration Cove

In November 2014, a failure in the engineered seawall across Arbitration Cove resulted in ocean waters inundating the Main Pit on Koolan Island - the source of hematite usually mined and shipped for export. As a result, the mining rate during 2015 at Koolan Island was reduced (as material was at the time only able to be sourced from small terrestrial pits) and, in early 2016, operations on the island entered a formal period of care and maintenance.

Since June 2016, Koolan Iron Ore Pty Ltd (KIO) has progressed with feasibility assessments and a design to give basis to a formal decision on re-instating the seawall with the plan to recommence mining within the Main Pit ostensibly from late 2017.

The proposed seawall engineering design has undergone extensive assessment and review to action restoration of the seawall in the near future. A revised conceptual seawall design is provided in Figure 3. This design:

- will incorporate a grouted wall within the embankment to provide a water seepage barrier;
- uses the lowest volume of engineering fill (circa 500,000 m_3) of any conceptual designs examined; and
- provides the shortest period of civil works, due to the least handling and transport of bulk or engineered fills.

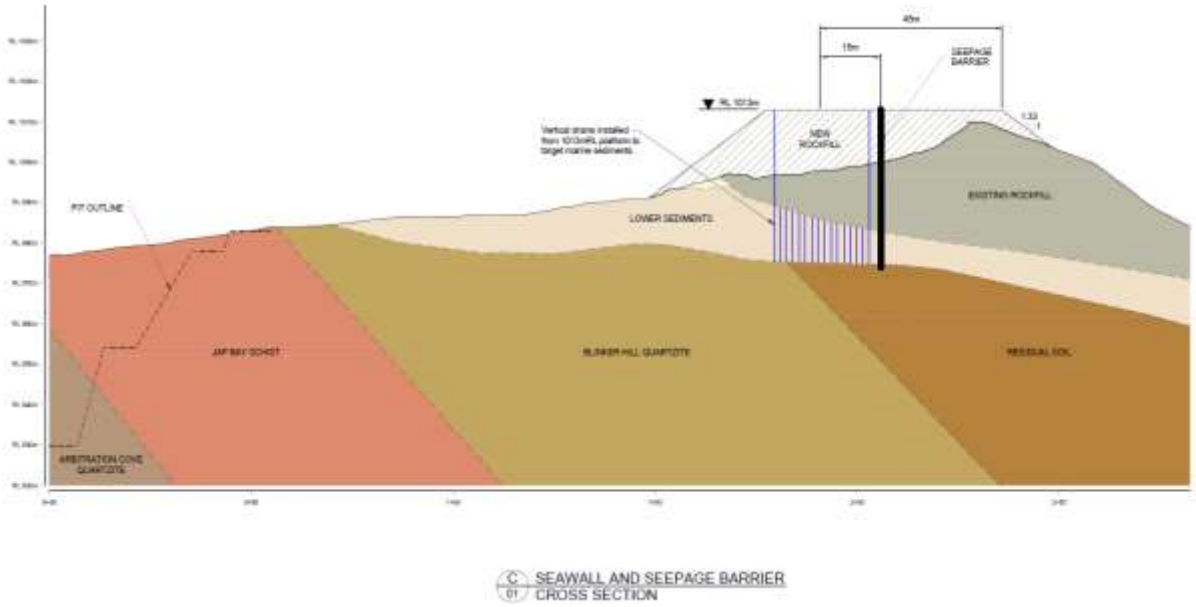


Figure 3: Schematic cross-section of the proposed reconstructed seawall through the breach area.

The reconstructed seawall will extend approximately 250 m across the failed section of the original seawall, between the stabilised sections of the existing seawall, where abutments will be formed. At the abutment locations, the seawall will be keyed into sound sections of the original wall. The maximum height of the seawall will be approximately 15 m, with the crest at the same level as the existing seawall abutments. The design height of the seawall is based on a risk evaluation which has considered tide levels, storm surge and wave height in the context of the required service life. This design height will reduce the risk of wave over-topping during storms and minimise damage and maintenance to the seawall. The width of the seawall at its base will be approximately 150 m. A conceptual plan of the reconstructed seawall is provided in Figure 4.

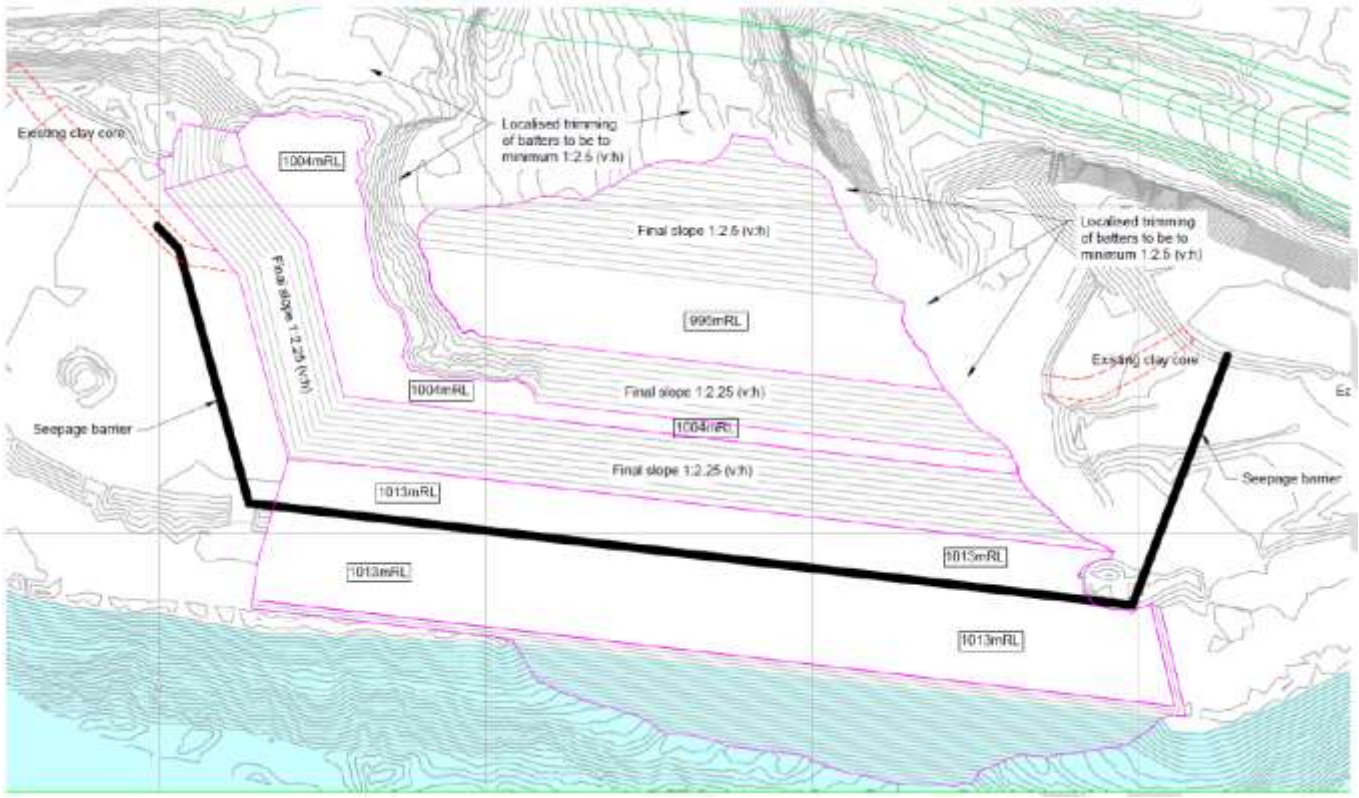


Figure 4: Conceptual plan of proposed reconstructed seawall (note that the toe of the rockfill armour matches the alignment and relief of the existing wall

The seawall will utilise a stone filled embankment, designed to minimise seawater ingress into the Main Pit, take into account stability considerations, foundation conditions, freeboard requirements, storm protection and construction methods. The design elements and construction materials duly consider the extreme tidal variations and practical limitations imposed by the remoteness of the site.

The embankment will nominally consist of an outer coarse rock material (>150 mm to <2 m diameter) that will act as armour on the seaward side of the seawall; and a graded material (<150 mm) as the core of the seawall and in which the grout wall will be installed to a depth that meets the bedrock beneath.

Competent rock materials will be sourced from rock previously mined on tenements and currently stored in waste rock dumps on Koolan Island. This rock material will then be graded, screened and/or crushed to meet the necessary specifications using the processing plant currently licensed on site. At least 500,000 m_3 of material will be required to construct the fill within the volume of the seawall breach. The materials used, sourced directly from the mine site with, because of its inert nature, a very low potential for geochemical impacts has been assessed and demonstrated to be acceptable for the operation and closure of the mine.

Construction of the seawall will take place using standard construction methodology of end-tipping material from trucks at the abutments of the existing seawall. Outer material will be tipped first in stages and, when a sufficient length has been installed and is trafficable, inner material will be progressively end-tipped along the seaward face. This will secure material in place and reduce the potential for erosion and slumping.

The seawall will be progressed by advancing the ends of the tipping zones. Material will be tipped at a rate of approximately 10,000 m_3 per day over a two month period. Material will be tipped at a safe distance from the working edge of the embankment, and a dozer will push the material to the edge, thereby advancing the embankment.

Placement of material and movement of equipment will be carefully related to low tide levels, to limit erosion of the placed materials and turbidity. Construction progress will also be governed by temporary hold periods at nominated crest elevations to facilitate foundation consolidation and performance monitoring. Occasional use of marine vessels such as tenders, tugs, support boats, barges and jack-ups may be required.

To minimise water seepage through the seawall embankment a grout wall is planned to be installed within the core material for the entire length of the seawall rebuild section, to within and towards each end of the existing seawall.

Dewatering of the inundated Main Pit

The Main Pit currently contains an estimated 21 GL of seawater. Pumping of this water to dewater the pit will be conducted over a period of approximately six months once the first part of the seawall has been reconstructed and sealed. The water will be pumped at a rate of approximately 1,200-1,500 Litres per second (L/s) over the seawall and, when of seawater quality, discharged direct to the ocean. The pipes for conveyance of good quality seawater from the Main Pit will extend directly from the shoreline of Arbitration Cove. The number of pipes, length and diameter may vary during this campaign, as this is dependent on the depth of water in the pit, the pumping head and the size of the pumps used.

The volume of seawater per second to be dewatered during the capital dewatering campaign is larger than the original pit dewatering; however this has no effect if the water to be released is the same or similar quality to the ocean because of the enormity of the receiving environment. The only factor of environmental interest is the size of the initial mixing zone.

The discharge points for direct discharge will be raised off the seabed to prevent scouring and will be approximately 5 m below the surface to maximise mixing with the surrounding seawater.

Towards the bottom of the inundated Main Pit, seawater may become turbid and contain suspended sediments as volumes become constrained and waters are agitated as they are pumped up for dewatering. Under such conditions, the seawater entrained in the Pit would be treated through the sedimentation pond before it is released. This is consistent with existing and long standing operational approvals under Licence 8148 from Deperment of Environment Regulation (DER) (Appendix 1) and as approved by Ministerial Statement 715 (MS715, issued by WA Minister for Environment) (Appendix 2).

Completion of dewatering will allow the recovery of iron ore and waste rock materials from the Main Pit to re-commence mining consistent with the existing approvals. Once the pit void has been readied by removal of rock and sediment to waste rock landforms, mining of hematite ore would re-commence in accordance with MS 715, including the existing approval conditions (and associated management plans).

Maintenance dewatering during the mining phase will occur as per MS 715 and L8148 and therefore does not form part of this referral.

2.2 Feasible alternatives to taking the proposed action

If you have identified that alternatives to taking the action were considered, but are not proposed (in section 1.9), please complete this section. Please provide a detailed description outlining any feasible alternatives to taking the proposed action (including not taking the action) that were considered but are not proposed. (Please note that these do not include any proposed alternative locations, time frames, or activities that form part of the proposed action which are to be discussed below at section 2.3).

The only feasible alternative to taking the proposed action would be to not take the action. However, this would result in the loss of an opportunity to recommence mining within the Main Pit. The gap within the seawall must be replaced to dewater the pit and recommence mining. A comprehensive feasibility assessment has been conducted by Coffey Pty Ltd to determine the most appropriate and safe method by which this may be done. The engineering design selected and detailed above is currently identified as the most suitable.

2.3 Alternative locations, time frames or activities that form part of the referred action

If you have identified that the proposed action includes alternative time frames, locations or activities (in section 1.10), please complete this section. Please describe any alternatives related to the physical location of the action, time frames within which the action is to be taken and alternative methods or activities for undertaking the action. For each alternative location, time frame or activity identified, please also complete (where relevant) the details in sections 1.2-1.9, 2.4, 2.7, 3 and 5. Please note, if the action that you propose to take is determined to be a controlled action, any alternative locations, time frames or activities that are identified here may be subject to environmental assessment and a decision on whether to approve the alternative.

As described by section 2.2 there are no feasible alternative locations. Alternate timeframes are also not suitable as the company requires access to the resource at the earliest convienence for the project to be economically viable.

2.4 Context, including any relevant planning framework and state/local government requirements

Please explain the context in which the action is proposed, including any relevant planning framework at the state and/or local government level (e.g. within scope of a management plan, planning initiative or policy framework) and social and economic context including as population size, economic opportunities and employment information. Describe any applicable Commonwealth or state legislation or policies (other than those related to other environmental impact assessment which are to be discussed below at section 2.5).

The proposed activity would be undertaken consistent with existing approvals and legislative requiremetns. See Section 2.5 below.

2.5 Environmental impact assessments under Commonwealth, State or Territory legislation

If you have identified that the proposed action will be, is being or has been subject to a Commonwealth, State or Territory environmental impact statement (in section 1.11), please complete this section. Please describe any environmental assessment of the relevant impacts of the proposed action that has been, is being, or will be carried out under Commonwealth, State or Territory legislation. Specify the type and scope of the assessment (for example, whether the assessment relates to part or the whole of the proposed action, or the proposed action, as a component of a larger action), the relevant legislation and the current status of any assessments or approvals. Where possible, provide contact details for the relevant assessment contact officer. Further, please describe or summarise any public consultation undertaken, or to be undertaken, during the assessment. Attach copies of relevant assessment documentation and outcomes of public consultations (if available).

In 2006, the proposal to re-open the iron ore mine and port on Koolan Island was deemed to be a controlled action in relation to Listed Threatened Species and Ecological Communities, sections 18 and 18A of the EPBC Act 1999, and was assessed with approval granted under the EPBC Act (EPBC 2006/2522). In 2013, the re-opening of another mining pit on the island (Acacia East) and backfilling of other mined pits not included in the original referred proposal, was referred and was deemed to be "Not a controlled action if undertaken in a particular manner" in relation to National Heritage Places, sections 15B and 15C of the EPBC Act 1999 (EPBC 2013/6752), with conditions of that approval focussed on management of potential impacts to stygofauna. The footprint of the proposal subject to this referral adjoins the disturbance footprints approved following these previous assessments.

The existing mining and shipping operations were also originally assessed by the Western Australian Environmental Protection Authority (WA EPA), and approved by the Minister for Environment under the *Environmental Protection Act 1986* (MS 715) in 2006. Since then, amendments to the original approval seeking additional areas of vegetation clearing have been assessed and granted by the Environmental Protection Authority under delegation by the Minister for Environment.

The potential impacts to flora, fauna, ecosystems and national heritage values associated with operations on the island are managed in compliance with the conditions of the above and other regulatory approvals, including in accordance with the following management plans:

- Marine Management Plan (MGI, 2014)
- Significant Flora Species Management Plan (MGI, 2012)
- Significant Fauna Species Management Plan (MBS, 2012)
- Northern Quoll Management Plan (MGI, 2012)
- Subterranean Fauna Management Plan (MBS, 2013)
- Quarantine Management Plan (MGI, 2012)
- Water Management Plan (MGI, 2015)
- Environmental Management Plan (MGI, 2015).

KIO has consulted with the Environmental Protection Authority (EPA), Department of Mines and Petroleum (DMP) and Department of Environment Regulation (DER) in regards to the applicable state based legislative and approval requirements fo the proposed activities. To allow for reconstruction of the seawall and capital dewatering in relation to state based legislation, KIO submitted the following documents during September 2016 to the relevant state departments:

- A s45C application for amendment of MS715 as per Part IV of the *Environmental Protection Act 1986* (EPA),

- A Mining Proposal addendum to amend approved Mining Proposal Reg ID 5601 (DMP) as per the *Mining Act 1978*; and
- An amendment to L8148 to increase the production design capacity of crushing and screening rock materials (DER) as per Part V of the *Environmental Protection Act 1986*.

The above mentioned documents can be forwarded to the Department upon request.

KIO has also revised the Marine Management Plan (MMP) required by MS715 to include measures to mitigate potential environmental effects of the construction activities on the marine environment. Similar measures were included within a previous version of the plan and implemented during the construction phase of 2008 of the original proposal. The revised MMP is provided within Appendix 3.

2.6 Public consultation (including with Indigenous stakeholders)

Your referral must include a description of any public consultation that has been, or is being, undertaken. Where Indigenous stakeholders are likely to be affected by your proposed action, your referral should describe any consultations undertaken with Indigenous stakeholders. Identify the relevant stakeholders and the status of consultations at the time of the referral. Where appropriate include copies of documents recording the outcomes of any consultations.

Consultation with various government agencies has taken place in relation to regulatory approvals as detailed above.

Mount Gibson Iron engages with Dambimangari under the terms of a Co-Existence Deed. Mount Gibson formally briefs the Dambimangari and the Derby community once a year about all operations at Koolan Island. At least twice a year on environmental matters, a committee formed with the Dambimangari is updated on current operations on Koolan Island generally, including rehabilitation and mine closure planning activities.

2.7 A staged development or component of a larger action

If you have identified that the proposed action is a component of a larger action (in section 1.12), please complete this section. Please provide information about the larger action and details of any interdependency between the stages/components and the larger action. You may also provide justification as to why you believe it is reasonable for the referred action to be considered separately from the larger action (e.g. the referred action is 'stand-alone' and viable in its own right, there are separate responsibilities for component actions or approvals have been split in a similar way at the state or local government levels).

As discussed in 2.5 above, this proposal is related to the already approved Koolan Island Iron Ore Mine and Port operating under EPBC Act approvals 2006/2522 and 2013/6752, as well as associated and approved management plans.

2.8 Related actions

If you have identified that the proposed action has related actions (in section 1.13), please complete this section. Please provide information about the related actions including, as appropriate:

- the nature, scope and location of the related action;
- the nature and scope of the assessment under the relevant legislation;
- a statement confirming how the action relates to the Proposed Action;
- the key documents produced as part of the assessment, by whom and when (using active statements), and the extent to which the assessment of the action is relevant to the assessment of the impacts of the Proposed Action on the matters protected by the Controlling Provisions of the EPBC Act and the related findings of this Report. Please cross reference to the analysis of the impacts of the Proposed Action below;
- public consultation during the assessment including the extent (i.e. duration and means) and results; and
- if available, the conclusion of the assessment and final decision following assessment, i.e. approval, approval subject to conditions or refusal.

The related actions are discussed in Section 2.5 and 2.7 above.

3 Description of environment & likely impacts

Note: If you have identified alternatives in relation to location, time frames or activities as part of the proposed action at section 1.10 and 2.3, please complete this section in relation to each of the alternatives identified.

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposed action on the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

For each matter protected by the EPBC Act, provide a description of the matter including, as appropriate:

- a brief description of the matter (for example, for threatened species, the population size, habitat, breeding, diet and life cycle etc);
- the status, extent and condition of the matter within the affected area and also more broadly in the region; and
- the key threats and threatening processes and beneficial actions and processes for the Protected Matter(s) excluding those from the proposed action, for example, under relevant approved conservation advices, recovery plans or threat abatement plans, management plans or other strategic plans, management principles or obligations under International Conventions.

- Having identified the relevant matters protected under the EPBC Act, identify the impacts the proposed action will or is likely to have on these matters (e.g. light, noise, biodiversity loss, water quality etc). For each type of impact, provide a concise description of the likely nature, scope and consequences of the impact on the Protected Matter(s). In doing so, consider factors such as, as appropriate: whether the impact is a direct or indirect impact - **note that, even if your proposed action will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts) by its indirect impacts**;
- the timing and duration of the likely impact, for example, one-off, re-occurring or ongoing, short term or long term;
- the extent of the impact, for example, uncertain or certain, permanent/irreversible or temporary/ reversible, and localised or broad-scale;
- the likely consequence of the impact on the Protected Matter(s), including both adverse and beneficial impacts and any related social and economic impacts;
- the likelihood of the impact affecting the Protected Matter(s); and
- whether there are any measures available to prevent and avoid, or mitigate and repair the consequences of, the impact.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- Associated sectoral and species policy statements available on the web site, as relevant.

Your assessment of likely impacts should also consider whether a bioregional plan is relevant to your proposed action. The Minister has prepared four marine bioregional plans (**MBP**) in accordance with section 176 of the EPBC Act. It is likely that the MBPs will be more commonly relevant where listed threatened species, listed migratory species or a Commonwealth marine area is considered.

3.1 (a) World Heritage Properties

Description

Not Applicable

3.1 (b) National Heritage Places

Description

On 31 August 2011, the Minister for Environment included parts of the West Kimberley and its National Heritage values on the National Heritage List. Koolan Island is geographically located within the Buccaneer Archipelago which is part of the West Kimberley National Heritage Place (Refer Figure 5). There are a number of national heritage values ascribed to the general area which includes Koolan Island, and those values are summarised in Table 1.

Nature and extent of likely impact

Address any impacts on the National Heritage values of any National Heritage place.

The proposed action is NOT likely to have a significant impact on the current condition of National Heritage values of the West Kimberley National Heritage Place because there is no real chance or possibility that the proposal will cause one or more of its National Heritage values to be:

- lost;
- degraded or damaged; or
- notably altered, modified, obscured, or diminished.

Table 1 summarises the National Heritage Listing Criteria and National Heritage values relevant to West Kimberley and the area of Koolan Island, and an assessment of potential impact to these values in relation to the proposal.

Figure 5: Location of the West Kimberley national heritage area

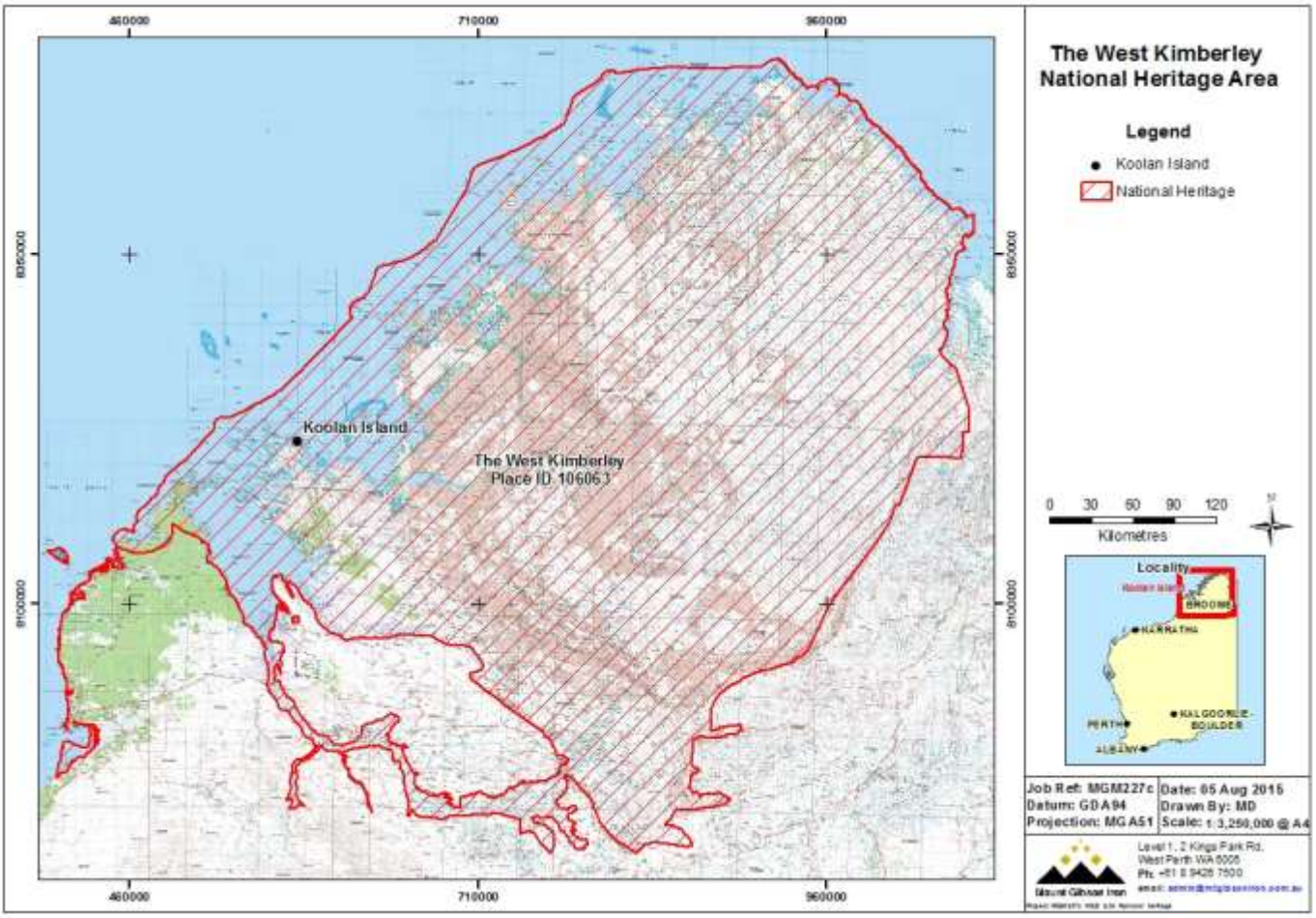


Table 1 Assessment of proposal against National Heritage Listing Criteria and Values relevant to Koolan Island

National Heritage Listing Criteria	West Kimberley National Heritage Place stated values	Potential impact of proposal
CRITERION (a) – The place has outstanding heritage value because of the place's importance in the course, or pattern of Australia's natural or cultural history.	Northern Kimberley coast and islands and the Kimberley Plateau, and the Devonian reefs of the west Kimberley – species (fauna and flora) richness and endemism and as refugia protecting against human-induced environmental change	No impact. The land subject to this proposal has been subjected to previsouly approved development. There will be no increase to disturbance of the marine environment beyond that previously approved and implemented. The marine environment does not contain habitat that is unique, or of specific characteristics of value to listed or protected species, or that supports a high abundance, diversity or density of marine fauna (Refer Section 3.1 (d) for further discussion). The proposal will not modify, alter or inhibit landscape processes, it does not divert, impound or channelize a water body; and it will not increase concentrations of pollutants in the National Heritage Place. The proposal will not fragment, isolate or damage habitat important for the conservation of biological diversity or endemic or unique populations or species in a National Heritage place, nor will it modify or reduce the diversity or composition of any plant or animal species (Refer to Sections 3.1 (d) and (e) for further discussion).
	William Dampier landing place: Pender Bay, Karrakatta Bay, King Sound, the Buccaneer Archipelago and nearby coast – association with the life and work of William Dampier.	No impact. There is no evidence that the proposal area is associated with the life and work of William Dampier and the proposal will not extend beyond areas already approved for disturbance.
National Heritage Listing Criteria	**West Kimberley National Heritage Place value**	**Potential impact of proposal**
CRITERION (c) – The place has outstanding heritage value to the nation because of the place's potential to yield information that will	West Kimberley coast from Cape Londonderry to the Lacepede Islands – potential to yield information on Indonesian-Australian interaction	No impact. The proposal will be implemented in an area that has been disturbed through existing approved operations so there is no potential to yield information on Indonesian-Australian interaction.

contribute to an understanding of Australia's natural or cultural history	The coastline from Cape Londonderry to Cape Leveque and the Devonian reef complex – potential to yield significant new archaeological information	No impact. The proposal will be implemented in an area that has been modified through existing approved operations, so there is no potential to yield significant new archaeological information. Archaeological information on parts of Koolan Island is known to the Dambimangari People.
	West Kimberley coast between Cape Londonderry and Cape Leveque – potential to yield information on the nature and effect of mega-tsunami	No impact. The proposal will be implemented in an area that has been modified through existing approved operations.
CRITERION (e) – The place has outstanding heritage value because of the place's importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.	The west Kimberley including: the coast from the Buccaneer Archipelago to King George River; Mitchell River National Park (NP); Windjana Gorge NP and Geikie Gorge NP; King George Falls and King George River; Geikie Gorge Conservation Park (CP) and King Leopold Ranges CP – aesthetic characteristics valued by the Australian community	No impact. Koolan Island and the nearby Cockatoo Island, within the Buccaneer Archipelago, have been mined for many decades, and their current condition could be considered as part of the aesthetic characteristics of the west Kimberley by the contemporary Australian community. Iron Ore from these mines has served Australian industry for over 50 years. The proposal will not cause degradation, loss, modification, or diminishment of the existing aesthetic characteristics of Koolan Island or the Buccaneer Archipelago (refer further discussion below).
	West Kimberley coast – double log raft, a unique adaptation to the massive tidal variation – noted as an intangible value that has not been mapped.	No impact.

The aesthetic condition of Koolan Island and its surrounding environs is defined by its history of industrial and mining uses, and its continued support of these uses. It has existing mine pits, mine waste landforms and mining associated infrastructure such as port facilities, buildings, roads and an airstrip. There are barges, ships and planes that travel between the mainland, the island and offshore areas, and there is heavy haulage and other equipment in use on the island. Koolan Island and its surrounds is not a noise-free, undeveloped or remote wilderness area.

The first record of iron ore being removed from Koolan Island was in 1870s by pearlers operating their luggers in Yampi waters. They used the iron ore as ballast for their vessels during trade with Asia. In 1907, Mr Percy Kean of the Australian Prospecting Association investigated the export potential of iron ore from the Yampi Islands (of which Koolan Island is the largest island) and subsequently took up the mining leases. These items were noted in the 1908 Annual Progress Report of the Survey of Western Australia by W.D. Campbell and referred to in Keith Smith's book "The Greatest Challenge" (Smith 1979).

Mr A. Montgomery State Mining Engineer Western Australia visited Koolan Island in October 1919. Mr Montgomery's report published in January 1920 specified many of the key characteristics of Koolan Island and the challenges for mining to fully realise the export potential and benefit to Western Australia. Harold Buckley purchased the Koolan Island Leases in 1930 for £150 and subsequently sold them for £35,000 four years later to Sir James Connolly. By 1936 there were 60 men working on Koolan Island for Sir James Connelly and the Yampi Sound Mining Company. Sir David Brand and Sir Charles Court drove the mineral boom of the 1960's with this area being the first step for development of the North West of Western Australia. Australian Iron and Steel Pty Ltd, a wholly owned subsidiary of the Broken Hill Proprietary Co. Ltd (BHP), then held the leases to Koolan and Cockatoo between 1959 and 1993, supplying high grade ore to various markets, including the furnaces of Newcastle and Port Kembla in New South Wales. Mining and associated infrastructure activities re-commenced on Koolan Island in 2007.

Her Majesty the Queen and his Royal Highness the Duke of Edinburgh visited Koolan Island on 20 March, 1963 as an illustration of both West Australian history and as an example that at the time "the North of the State was now really on the move".

As can be seen from the above brief précis (from Smith 1979), there is a European history of exploration, mining for iron ore and development on Koolan Island for over a hundred years. There are no Aboriginal Heritage sites identified within the proposal area and Aboriginal traditional land uses by the Dambimangari Native Title holders co-exist with the major land use of mining on the island.

It could be reasonably argued that the island and its environs, and its long term use and operations, could be considered as part of the aesthetic characteristics of the West Kimberley by the contemporary Australian community. As such, the proposal will not cause further degradation, loss, modification, or diminishment of the current aesthetic characteristics of Koolan Island and its surrounds, and therefore will not have an adverse impact on this matter of national environmental significance.

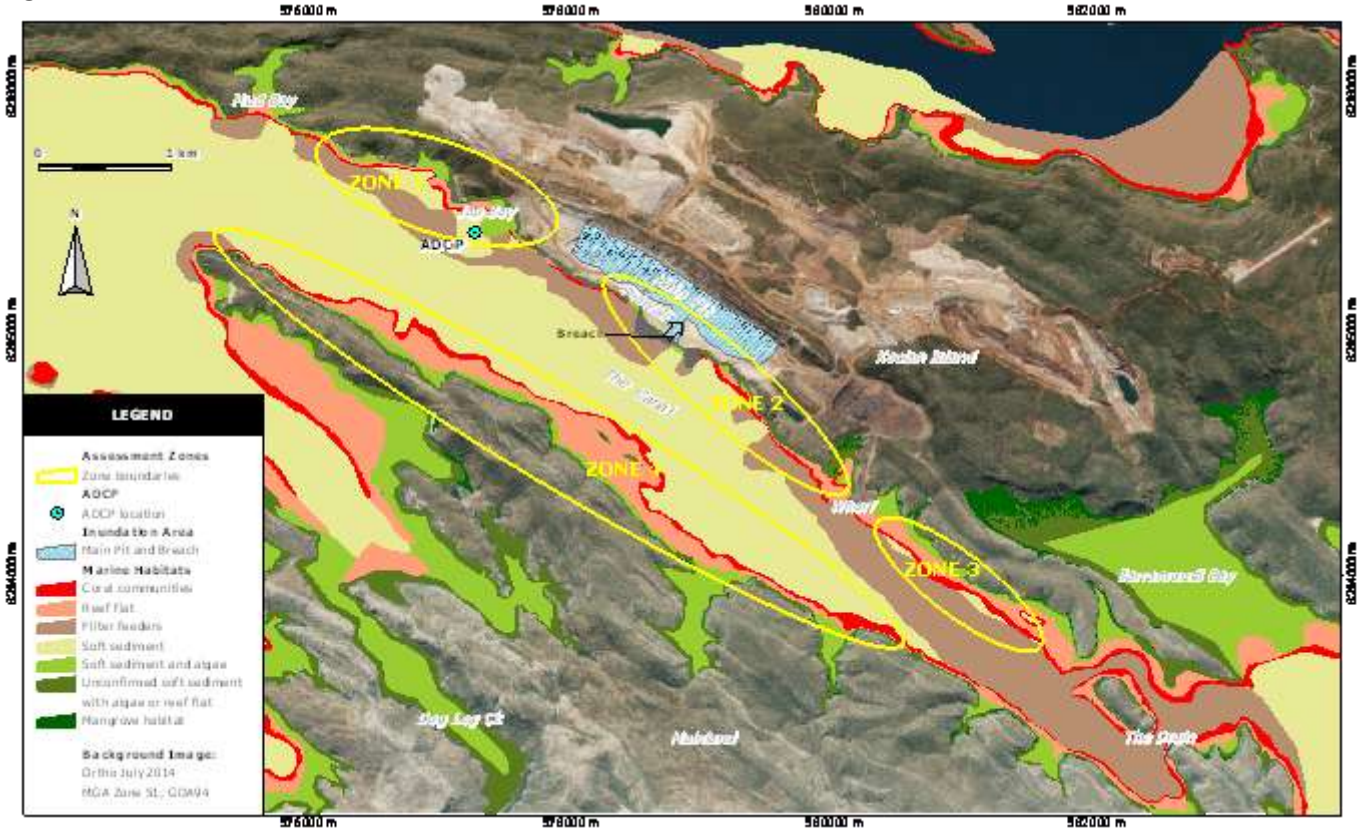
3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

Not Applicable

3.1 (d) Listed threatened species and ecological communities

Figure 6: Benthic habitat types and monitoring zones. Area of breach and flooded Pit can be seen in plan view.



Description

Listed Threatened Ecological Communities

There are no Threatened Ecological Communities within the development footprint of this proposal.

Marine Species

A search conducted by Hydrobiology (2014) using the PMST based on a polygon encompassing Koolan Island with a buffer of 50 km identified the potential presence of eight marine mammals, eight reptiles and seven sharks and rays recorded as either Listed Threatened and/or Migratory Species.

Listed threatened and migratory marine mammals

- Blue Whale (*Balaenoptera musculus*) (Endangered, Migratory)
- Humpback Whale (*Megaptera novaeangliae*) (Vulnerable, Migratory).

Migratory marine mammals

- Dugong (*Dugong dugon*) (Migratory)
- Bryde's Whale (*Balaenoptera edeni*) (Migratory)
- Killer Whale (*Orcinus orca*) (Migratory)
- Snubfin Dolphin (*Orcaella heinsohni*) (Migratory)
- Indo-Pacific Humpback Dolphin (*Sousa chinensis*) (Migratory)
- Spotted Bottlenose Dolphin (*Tursiops aduncus*) (Migratory).

Listed threatened and migratory marine reptiles

- Short-nosed sea snake (*Aipusurus apraefrontalis*) (Critically endangered)
- Loggerhead, Leatherback and Olive Ridley turtles (*Caretta caretta, Dermochelys coriacea, Lepidochelys olivacea*) (Endangered, Migratory)
- Green, Hawksbill and Flatback turtles (*Chelonia mydas, Eretmochelys imbricata, Natator depressus*) (Vulnerable, Migratory).

Migratory marine reptiles

- Salt-water Crocodile (*Crocodylus porosus*) (Migratory).

Listed threatened and migratory sharks and rays

- Northern River Shark (*Glyphis garricki*) (Endangered)
- Great White Shark (*Carcharadon carcharius*) (Vulnerable, Migratory)
- Dwarf, Largetooth and Green Sawfish (*Pristis clavata, Prisits pristis* and *Pristis zijsron*) (Vulnerable)
- Whale Shark (*Rhincodon typus*) (Vulnerable, Migratory).

Migratory sharks and rays

- Giant Manta Ray (*Manta birostris*) (Migratory).

Fish, reptiles (including turtles and crocodiles) and mammals (dolphins, dugongs and whales) are known to occur from time to time in waters of Koolan Island, as they are around Buccaneer Archipelago and Yampi Peninsula.

The information assessed by Hydrobiology (2014) resulted in three species identified as being potentially relevant to the assessment of environmental effects because of the proposal within The Canal at Koolan Island and prospective marine fauna habitat:

- Short-nosed sea snake (*Aipusurus apraefrontalis*)
- Northern river shark (*Glyphis garricki*)
- Humpback whale (*Megaptera novaeangliae*) (Hydrobiology, 2014).

The Short-nosed Sea Snake is an endemic species with a small range found on Ashmore Reef and Hibernia Reefs in Australia. It has also very occasionally been recorded from other locations in northwest Australian waters, however, these rare records from outside Ashmore and Hibernia Reefs are thought to be of vagrant individuals and not part of the range of breeding populations of this species. This species range at those two reefs has approximately 70 km of shoreline, and given its very shallow depth range of 10 m, it has an area of occupancy estimated to be less than 10 km² at the reefs (The IUCN Red List of Threatened Species, http://www.iucnredlist.org/details/176770/0).

The Northern River Shark (*Glyphis garricki*) is taxonomically difficult to identify, is very difficult to distinguish from other *Glyphis* species (accurate identifications need to include x-rays of the vertebral column), and can be confused with the Bull Shark *(Carcharhinus leucas*). This species was thought to be confined to the turbid freshwater and brackish reaches of rivers, but a specimen provisionally identified as this species was taken from a salinity of 38 ppt in northern Western Australia. The ecology (i.e., critical habitat, salinity tolerances) and life history parameters (age and size at maturity for males and females, litter sizes, longevity) of this species are little known and it generally needs further investigation. The small eyes and slender teeth of *Glyphis* species suggest that they are primarily fish eaters adapted to living in turbid waters with poor visibility (The IUCN Red List of Threatened Species, http://www.iucnredlist.org/details/42712/0).

Group IV humpback whales occur seasonally in Kimberley coastal waters as they migrate each southern winter along the length of the WA coast towards Camden Sound which is north from Koolan Island. Whale records have been made of passing whales (likely to be humpbacks) with KIO records over several months of each year, typically peaking in late August to early September (Hydrobiology 2014).

Underwater sound recordings collected during August and September 2014 near the Island detected the presence of snapping shrimp, various fish species, and passing dolphins and humpback whales. Dolphins were detected on most days, with mostly clicks with a few faint whistles heard, suggesting that it is likely that dolphins are mainly using The Canal for foraging food. Five periods of whale vocalisation were detected in the recordings and they are likely from humpback whales. Four of these five calls were likely emitted from outside The Canal in the Buccaneer Archipelago region (Curtin University Centre for Marine Science and Technology, 2015).

Nature and extent of likely impact

Address any impacts on the members of any listened threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat.

Potential impacts on listed and migratory marine species falls into three categories:

- Habitat loss – the proposal footprint is restricted to areas previously approved and disturbed, resulting in no increase to habitat loss;
- Elevated turbidity – potentially from construction involving the placement of rock within the portion of the seawall to be reconstructed and capital dewatering of the Main Pit causing disruption to fauna and temporary reduction in visibility; and
- Noise - noise levels generated during sheet piling.

Habitat Loss

The Original Proposal described a seawall at Arbitration Cove with 2.4 ha of seabed reclamation, consisting of 1.3 ha of reef flat and 1.1 ha of reef slope habitat, which includes coral slope and lower slope habitats (MScience, 2005). This proposal does not involve an increase to this existing disturbance and therefore does not cause for direct habitat loss (See Figures 3 and 6).

Turbidity

Construction activities have the potential to cause an increase in turbidity in the marine environment. However, observations made during the previous construction of a seawall at Koolan Island indicates that a significant increase in turbidity is unlikely to occur, or that it would be localised and of limited significance and duration.

The existing seawall construction was undertaken in accordance with the conditions of approval issued for the proposal through assessments under the EPBC Act 1999, EP Act 1986, and Mining Act 1978 as detailed in Section 2.5. Construction commenced in February 2008 and was completed in December 2011. The general methodology for the seawall construction involved controlled placement of rockfill by longreach excavators or a stacker against the face of the "drop off" between the island and The Canal in Arbitration Cove, as a starter embankment. In principle, each stage involved a seawall raise (initial raising of the outer rockfill zones, followed by infilling and compaction of the low permeability core zone), followed by a hold and monitoring period which enabled sufficient consolidation and foundation strength gain to occur under the new embankment load, before proceeding with each subsequent stage. Koolan Island is exposed to extreme tidal ranges (sometimes exceeding 10m), and this tidal variation imposed constraints on the past seawall construction activities particularly because access to the construction area was constrained by periods of sea inundation.

During this entire construction period, daily diary entries were made and photos were taken to record construction activities. Plates 1 to 3 (below) taken from the Koolan Island Seawall Post Construction report show different stages of the construction program previously completed in 2010 (GHD, 2014). Note the absence of surface turbidity within The Canal during the conditions at the time of the works.

Plate 1: Arbitration Cove Seawall Starter Embankment construction using longreach excavators (looking from Koolan Island across The Canal to the mainland, circa 2008) Source: GHD, 2014

Plate 2: Arbitration Cove Seawall Western Starter Embankment construction with mobile stacker, circa 2008. Source: GHD, 2014

Plate 3: RL+3.0m of previous construction lift circa 2009 (with the Eastern abutment of Jap Bay visible just beyond the construction area). Source: GHD, 2014

Environmental monitoring was also undertaken during this construction period in accordance with the approved Marine Management Plan (MGI, 2014). This plan provided regular monitoring of water quality, sediment quality and benthic habitats during construction of the seawall assessed and approved in 2006, as compared against management criteria and baseline conditions that existed before the re-opening of mining on Koolan Island in 2007. Regular annual assessment of coral community condition is ongoing. Turbidity levels exceeding trigger values are occasionally recorded, however all values were relatively low compared to levels expected to harm coral communities and compared to values that naturally occur during extreme weather conditions. Repeated observations showed marked spatial and temporal turbidity variations around Koolan Island, most likely due to natural processes such as tidal flux and therefore related to the time of sampling (MScience 2008b in Mount Gibson Iron, 2009).

Relevant results of this monitoring and surveys are described in the relevant Project Annual Environmental Reports (KIO, 2008, 2009; & Mount Gibson Iron, 2010). Key findings were:

- Nutrient and metal concentrations remained below trigger levels (MScience 2008);
- Some turbidity measurements at all impact sites exceeded trigger values, however all values were relatively low compared to levels expected to harm coral communities and compared to values that naturally occur during extreme weather conditions (MScience 2008);
- Repeated observations have shown marked spatial and temporal turbidity variations around Koolan Island, most likely due to natural processes such as tidal flux, rather than mining impact (MScience 2008);
- A benthic habitat survey was conducted in November 2008 and quarterly throughout 2009. At all sites, qualitative assessment of coral communities found corals to be in good condition with negligible bleaching, breakage or abnormal sedimentation at any site (MScience 2008 & 2009);
- There was no evidence from the 2008 and 2009 benthic habitat surveys that turbidity exceedences described above had any impact on the benthic habitat around the island (MScience 2008 & 2009); and
- The 2010 monitoring of benthic habitat and coral communities at all sites also showed no indication of any significant change in cover or damage since pre-construction baseline studies. A small amount of coral bleaching was evident, however MScience considered that due to satisfactory water quality data the bleaching is unlikely to be the result of mining related activity, but more a result of higher than normal ambient ocean temperatures (Mount Gibson Iron, 2010).

Prior to mining, dewatering of the Main Pit first commenced in 2008. During that dewatering period, water quality monitoring and dewatering volumes were recorded, in accordance with an approved Marine Management Plan.

Results of the monitoring and surveys are described in KIO's Project Annual Environmental Reports (KIO, 2008, 2009; & Mount Gibson Iron 2010). Additional key findings to those described above are provided below:

- There were exceedances of salinity and temperature guidelines at some impact sites. Due to very low variation at the reference sites, these impact sites were particularly sensitive to minor site or current differences related to the time of the day or tidal activity, which are likely to be the cause of these small exceedances (MScience 2008). These water quality exceedances did not appear to be related to dewatering activities (MScience 2008);
- There was no indication of scouring around the dewatering outflow diffuser (MScience 2008); and
- There were several minor exceedances of TSS trigger levels and limits during testing of discharge water, however these were short-term and were rectified quickly. No significant impacts on benthic habitats were identified as a result of those exceedances.

More recently, Hydrobiology (2016) has summarised baseline conditions relating to water quality within the inundated Main Pit and receiving waters of The Canal in order that it shows its suitability for discharge. The summary, presented in Appendix 4, shows low to very low turbidity of fully saline water at the surface and near bottom within Main Pit. Temporal (tidal and seasonal) effects appear likely and it would be possible to conduct a simple testing and monitoring regime to compare prospective discharge waters within the Pit to the ambient conditions in The Canal to ensure that no or very little spatial water quality effect occurred outside of a small scale mixing zone. This would be confirmed by monitoring applied as part of the KIO Marine Management Plan (Version 20, Appendix 3).

In summary, the marine monitoring demonstrated that there were no indirect impacts on marine benthic habitat from the original seawall construction or pit dewatering.

Monitoring of turbidity and water quality continues to be conducted through the Marine Management Plan to detect changes to water quality and turbidity levels. Experience gained through the construction of the existing seawall will be of high value for implementing appropriate construction management techniques to minimise the potential for turbidity generation. Those techniques are further described within the revised Marine Management Plan (Appendix 3).

To contemporarily predict potential emissions from planned rock fill placement, KIO has commissioned development of a marine hydrodynamic model to examine advection–dispersion from civil works as the wall is repaired. Predictions will serve to inform / confirm the number and locations for monitoring in the Marine Management Plan, and confirm the prediction of no significant risk of impact on benthic primary producers.

Noise

The reconstruction of the seawall requires driving a series of interlocking steel sheets into the core of the seawall along a 200 m distance. These sheets are to be installed along some of the existing and the entire reconstructed portions of the seawall. Works are expected to be conducted over three to four months.

Piling activity in water creates noise and vibration that may have the potential to pose an environmental risk from underwater noise to sensitive hearing marine animals in adjacent coastal waters through physiological and behavioural effects on these animals. Potential marine fauna receptors include fish, reptiles (including turtles and crocodiles) and mammals (dolphins, dugongs and whales) which are known to occur from time to time in the waters surrounding Koolan Island.

Zones of possible behavioural disturbance and possible physical injury for cetaceans and dugongs associated with marine piling were assessed in the Kimberley setting by Strategic Environmental Assessment for the Browse Liquefied Natural Gas (LNG) Project (Department of State Development, 2010). This assessment was based on:

- a literature review to derive received threshold levels above which there could be a possibility of physical injury or behavioural effect; and
- estimations of peak pressure levels for pile driving noise based on an empirical formula.

That assessment determined that the furthest distance that the zone of potential temporary threshold shift (behavioural change) would extend from the source of marine pile driving noise was 250 m, and the furthest

distance from the source of pile driving noise to the edge of the zone of potential physical injury was 60 m (Department of State Development, 2010).

Given that zones of potential physiological and behavioural impact are limited, and that The Canal area appears to be of limited importance to whales, dugong or turtles, there is unlikely to be a risk of significant impact to these species from noise associated with the construction of the proposal if piling is utilised as a construction method. In this case, sheet piling is to occur approximately 100 m away from the water's edge. This solid medium will attenuate the transmission of noise and vibration to the nearby marine environment and is, therefore, unlikely to generate the levels of underwater noise associated with other marine construction projects within or directly adjacent to the water . Noise won't disturb turtles as there is no evidence of nesting on the small beaches on Koolan Island.

The reconstruction of the seawall is therefore unlikely to have a significant impact on marine fauna due to noise.

Table 2 below summarises the potential impacts on listed threatened and migratory marine fauna associated with the proposal.

Table 2: Assessment of risks of potential impacts to Listed Threatened and Migratory Marine Fauna

Taxon	Representative Species	Potential Impact Description	Likelihood of impact
Whales	Humpback Whale	Animals may breed and calve in the vicinity of Koolan Island, however, observations over many years indicate that the migration path is generally to the north and west of Koolan Island, with The Canal rarely utilised by whales. Construction work can be scheduled and monitored, so that potential impacts, particularly during the peak migration period are minimised or avoided. Noise from sheet piling activities will be attenuated due as it will be within the current and reconstructed seawall.	Very Low
Dugong	*Dugong dugon*	There is no habitat for this species in the proposal area, and they are unlikely to be present.	Very Low
Dolphins	Snubfin Dolphin, Indo-Pacific Humpback Dolphin, Spotted Bottlenose Dolphin, Spinner Dolphin.	There will be no modification of critical habitat or disruption of lifestyle. These species do not commonly occupy the area of the proposal. Any behavioural changes in relation to noise and vibration are likely to be limited and short term in nature.	Very Low
Turtles	Loggerhead Turtle, Green Turtle, Leatherback Turtle, Leathery Turtle, Hawksbill Turtle, Olive Ridley Turtle, Pacific Ridley Turtle, and Flatback Turtle.	There will be no modification of critical habitat or disruption of lifestyle. These species do not commonly occupy the area in the vicinity of the proposal. Any behavioural changes in relation to noise and vibration are likely to be limited and short term in nature.	Very Low
Sharks and bony fish	Great White Shark, Northern River Shark, Dwarf Sawfish, Largetooth Sawfish, Green Sawfish, teleost fish.	There will be no modification of critical habitat or disruption of lifestyle. Any behavioural changes in relation to noise and vibration are likely to be limited and short term in nature.	Very Low
Sea snakes	Short nosed sea snake.	This species is unlikely to be present in this area as it has only been found to date at offshore reefs located very far from the island. The habitat to be removed for this proposal is not unique and is present elsewhere around the island and within the wider area of Yampi Sound.	Very Low.

3.1 (e) Listed migratory species

Description

See 3.1 (d) for information related to marine migratory species.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, please complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

Not applicable.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, please complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land).

Description

If the action will affect Commonwealth land also describe the more general environment. The Policy Statement titled *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* provides further details on the type of information needed. If applicable, identify any potential impacts from actions taken outside the Australian jurisdiction on the environment in a Commonwealth Heritage Place overseas.

Not applicable.

3.1 (h) The Great Barrier Reef Marine Park

Description

Not applicable.

3.1 (i) A water resource, in relation to coal seam gas development or large coal mining development

Description

If the action is a coal seam gas development or large coal mining development that has, or is likely to have, a significant impact on water resources, the draft *Policy Statement Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources* provides further details on the type of information needed.

Not applicable.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if the proposed action:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef Marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	**Is the proposed action a nuclear action?**	☑	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	☑	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	☑	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))		

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	☑	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))		

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	☑	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))		

3.3 Description of the project area and affected area for the proposed action

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed above). If at Section 2.3 you identified any alternative locations, time frames or activities for your proposed action, please also complete each of the details below (where relevant) for each alternative identified.

3.3 (a) Flora and fauna
Not applicable.

3.3 (b) Hydrology, including water flows
Not applicable.

3.3 (c) Soil and Vegetation characteristics
Not applicable.

3.3 (d) Outstanding natural features
There are no outstanding natural features of the proposal area.

3.3 (e) Remnant native vegetation
Not applicable.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)
The proposal involves the reconstruction of a portion of the existing seawall. The toe of the wall intersects the seabed at approximately ten metres below mean sea level. See concepts in Figures 3 and 4.

3.3 (g) Current state of the environment
Include information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.
The area is entirely within that previously referred and approved for marine disturbance by **EPBC 2006/2522** and MS715.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values
Refer to response in 3.1 (b).

3.3 (i) Indigenous heritage values
Consultation with traditional owners, surveys undertaken of Koolan Island and a search of the Register of Aboriginal Sites identified Aboriginal heritage sites on Koolan Island, but none of these sites are located within the proposal area, and therefore would not be disturbed by this proposal (Archae-Aus, 2005 and Department of Indigenous Affairs, 2009).

3.3 (j) Other important or unique values of the environment
Describe any other key features of the environment affected by, or in proximity to the proposed action (for example, any national parks, conservation reserves, wetlands of national significance etc).

The southern boundary of the Lalang-garram / Camden Sound Marine Park is located approximately nine kilometres north of Koolan Island. The management plan for this marine park divides it into a number of management zones including:

- Sanctuary Zone;
- Special Purpose Zone (Whale Conservation)
- Special Purpose Zone (Wilderness Conservation)
- Special Purpose Zone (Pearling)
- General Use Zone.

The area of the marine park closest to Koolan Island is within the Western Shoals General Use Zone. This zone occupies an area of approximately 212,000 ha and provides for biodiversity conservation while allowing for a range of recreational and commercial uses, including large vessel transit to and from Yampi Sound Port (Department of Parks and Wildlife, 2013).

It is unlikely that this proposal would impact on this marine park because of the:

- contained nature and relatively small extent of the proposal footprint on the southern shore line of Koolan Island within the boundaries of the security regulated area of Port of Yampi Sound;
- limited nature of potential impacts from this proposal within the immediate vicinity of the existing development envelope and Koolan Island; and
- 9km separation of this development envelope from the southern-most boundary of the Lalang-garram / Camden Sound Marine Park.

The Roebuck Bay Ramsar Wetland is located approximately 260 km to the south-west of Koolan Island (Refer Section 3.1(e)). The proposal will not impact on this area.

3.3 (k) Tenure of the action area (e.g. freehold, leasehold)
The land subject to this proposal is within Mining Lease M04/417.

3.3 (l) Existing uses of area of proposed action
The existing uses of the area includes the mining of iron ore and implementation of the proposal would allow KIO to cease the period of care and maintenance and recommence mining operations.

3.3 (m) Any proposed uses of area of proposed action
As described by Section 2.1.

4 Environmental outcomes

Provide descriptions of the proposed environmental outcomes that will be achieved for the matters protected by the EPBC Act that are likely to be affected by the proposed action. Include details of the baseline data upon which the outcomes are based, and the confidence about the likely achievement of the proposed outcomes. Where outcomes cannot be identified or committed to, provide explanatory details including any commitments to identify outcomes through an assessment process.

If a proposed action is determined to be a controlled action, the Department may request further details to enable application of the *Outcomes-based Conditions Policy 2016* (http://www.environment.gov.au/epbc/publications/outcomes-based-conditions-policy-guidance), including information about the environmental outcomes to be achieved by proposed avoidance, mitigation, management or offset measures, details of baseline data, milestones, performance criteria, and monitoring and adaptive management to ensure the achievement of outcomes. If this information is available at the time of referral it should be included in the description of the proposed measures.

General commitments to achieving environmental outcomes, particularly relating to beneficial impacts of the proposed action, CANNOT be taken into account in making the decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act. However, those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, and conditions of approval, if your proposal proceeds to these stages.

The three matters of national environmental significance potentially relevant to this proposal are:

- Listed Threatened Species and Communities;
- Migratory Species; and
- National Heritage Place (West Kimberley).

The proposal is not likely to affect any of these matters so there is no change to environmental outcomes. Section 6.2 summarises the likely effects and outcomes for the above mentioned matters.

5 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities as part of the proposed action at sections 1.10 and 2.3 please complete this section in relation to each of the alternatives identified.

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

For each proposed measure, specify:

- a concise description of the nature, scope, work plan and consequence of the measure for the relevant impact and any statutory or policy basis for the measure;
- in doing so, include analysis and findings on whether each measure is likely to achieve the environmental outcomes for the matters protected by the EPBC Act which are likely to be affected by the proposed action, including noting:
    - the likely effectiveness of the measure in avoiding or mitigating the relevant impact on the matters protected by the EPBC Act;
    - the level of commitment by the person proposing to take the action to achieve the proposed environmental outcomes and implement the proposed mitigation measures. For example, identify if the measures are preliminary suggestions only that have not been fully researched, or are dependent on a third party's agreement (e.g. council or landowner);
    - any likely residual impacts (being, impacts likely to occur having implemented mitigation and/or avoidance measures) and, if such impacts will or are likely to occur, the measure available to compensate or offset these residual impacts. Please consider the Department's *EPBC Act, the EPBC Environmental Offsets Policy* (October 2012) (and *How to use the Offsets Assessment Guide*) and the *draft Policy Statement on EPBC Act Advanced Environmental Offsets*;
    - the likely consequences for the matters protected by the EPBC Act should the measure not be effective; and
    - any other likely consequences of the measure including both adverse and beneficial, such as efficiency, cost and cost-effectiveness and public acceptability (noting however, beneficial consequences of the measure will not be considered in deciding whether or not the proposed action is likely to have a significant impact on the matters protected by the EPBC Act).

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

Note, the Minister may decide that a proposed action is not likely to have significant impacts on a protected matter, as long as the action is taken in a particular manner (section 77A of the EPBC Act). The particular manner of taking the action may avoid

or reduce certain impacts, in such a way that those impacts will not be 'significant'. More detail is provided on the Department's web site.

For the Minister to make such a decision (under section 77A), the proposed measures to avoid or reduce impacts must:

- clearly form part of the referred action (e.g. be identified in the referral and fall within the responsibility of the person proposing to take the action);
- be must be clear, unambiguous, and provide certainty in relation to reducing or avoiding impacts on the matters protected; and
- must be realistic and practical in terms of reporting, auditing and enforcement.

As detailed by Section 3.1 (d), the key aspects of the proposed activities which require measures to avoid or mitigate potential risks to matters related to the EPBC Act include:

- the potential for increased turbidity in the marine environment; and
- the potential for increased noise on marine fauna.

5.1 Noise

Marine fauna receptors around Koolan Is include fish, reptiles (including turtles and crocodiles) and mammals (dolphins, dugongs and whales) which are known to occur from time to time in the waters surrounding Koolan Island. . Piling creates vibrations and emits high intensity impulsive noise with the potential to cause physiological effects on sensitive hearing animals, such as marine mammals and reptiles in adjacent coastal waters.

Sheet piling activities are not anticipated during the seawall re-construction

5.2 Turbidity – Benthic Habitat and Marine Environmental Quality

5.2.1 – Seawall Partial Reconstruction

The reconstruction of part of the seawall is not expected to result in direct impacts to benthic communities and habitat. The new portion of the seawall is proposed to be reconstructed within the footprint of the previously approved and constructed seawall (Figure 3).

Zone 2 Seawall construction material will be crushed and screened to approximately 50 mm prior to use, however a small amount of fine sediment will be unable to be screened out. The remaining fine sediment (likely to be far less than when the Seawall was originally constructed) may cause turbidity and sedimentation in the surrounding waters as the material is placed in the water, or as tidal and wave movements wash the fine material off the larger rock. This has no consequence when it is washed back into the inundated pit which acts as a large settlement pond.

KIO propose to time the placement of material into the water to minimise the interaction of water with the embankment under construction and hence the loss of fine material seawards via tidal movements. Material placement will target non-spring tides, and low tidal currents (i.e. during the changing of the tides). This is in accordance with the construction method of the original proposal.

Indirect impacts on this factor could be caused by reduced light availability and increasing sedimentation. The seawall construction materials have been shown to be free of contaminants therefore no toxicity is expected.

Once the seawall has been reconstructed, the rate of remnant sediment release would attentuate very quickly in time, as demonstrated by previous water quality monitoring (Section 3.1 (d)). Once finally sealed, no further exchange with the waters of the inundated pit are anticipated.

5.2.2 – Capital Dewatering

The proposed change to the Proposal includes the discharge of up to 25 GL of seawater back into the marine environment, via direct discharge outlets. This discharge is a single lengthy event, in addition to the approved maintenance discharge volume of 50 - 150 L/s approved under MS 715. There are currently licensed contingency release points identified by L8148/2006/4 (WA DER licence) along the coastline at Arbitration Cove (Appendix 2).

Increased turbidity and sedimentation within the mine pit dewater, should it occur, has the potential to affect benthic communities and habitat, by reducing light availability and increasing sedimentation.

The discharge is expected, certainly in the upper most majority of the Pit waters, to be almost identical to the receiving environment during the initial stages (as the pit is currently full of seawater sourced from the ocean),

however it may vary towards the later stages of dewatering as turbidity increases towards the base of the Main Pit, where fines have settled and accumulated since its inundation.

The Main Pit dewater volume will need to be discharged to the marine environment via discharge outlets if daily monitoring confirms that turbidity meets the triggers set in the MMP (version 20; Appendix 3). Given that the water in the Main Pit will be protected from tidal flows once the seawall is closed, it is expected that the majority of the water will be able to be directly discharged without any detectable effect in receiving water quality. Dewater quality that exceeds the limits set in the MMP will either be directed to the sedimentation pond and discharged via the approved diffuser as per the MMP, or handled, treated and/or used in some other way.

Evaporation may slightly increase the concentration of other water quality parameters however this is not expected to result in levels that would impact benthic communities and habitat.

The dewatering discharge is unlikely to result in a reduced water quality in the vicinity of the discharge points, beyond a mixing zone, during the mine dewatering phase. Marine fauna are unlikely to be permanently residing close to the discharge points, however, as the discharge points in Arbitration Cove are all located in areas mapped to be dominated by soft sediment and algae (Figure 6). Impacts to marine fauna are therefore limited to intermittent short-term events where the fauna may swim through the mixing zone, which may have a slight difference in turbidity, but not other physico-chemical parameters of seawater, and are therefore unlikely to be significant.

The dewatering discharge is therefore unlikely to have a significant impact on marine fauna with regard to benthic habitats and marine environmental water quality.

5.2.3 – Marine Management Plan

As detailed previously, KIO has revised the Marine Management Plan required by MS715. The EPA are currently assessing this plan and approval is anticipated prior to December 2016. This plan contains further measures to manage and monitor the potential risks to the marine environment due to the proposed activities. For further information on measures to avoid or reduce impacts it has been included as Appendix 3.

6 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (i.e. whether you think that significant impacts on the matters protected under Part 3 of the EPBC Act are likely) and the reasons why.

6.1 Do you THINK your proposed action is a controlled action?

☑	**No,** complete section 6.2
	Yes, complete section 6.3

6.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is NOT LIKELY to have significant impacts on a matter protected under the EPBC Act by reference to each relevant matter protected by the EPBC Act.

The three matters of national environmental significance potentially relevant to this proposal are:

- Listed Threatened Species and Communities;
- Migratory Species; and
- National Heritage Place (West Kimberley).

The proposal is not likely to have a significant impact on these matters of national environmental significance because:

- the terrestrial area proposed for this development is within the boundary previously approved for disturbance (Figure 2), is limited in area (approximately 2.4 ha) and does not form habitat to listed threatened species or communities or migratory species;
- the re-construction work and the site operations would continue to adopt requirements stipulated in EPBC 2006/2522, Statement 715 (WA) and Licence 8148/2006/4 (WA);
- potential effects of construction and operation activities on listed threatened species or communities or migratory species are not expected and can be managed through measures detailed by Section 5 and the revised Marine Management Plan (Appendix 3); and
- the area of construction and operations of the proposal has long been recognised for its industrial development, and therefore there will be no further degradation, loss or change of the aesthetics or values of the area within the west Kimberley region as relevant to its listing as a National Heritage Place.

The proposed action is not likely to have a significant impact on a matter of national environmental significance and is not a controlled action.

6.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) protected under the EPBC Act that you think are likely to be significantly impacted. (The 'sections' identified below are the relevant sections of the EPBC Act.)

	Matters likely to be significantly impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
	Listed threatened species and communities (sections 18 and 18A)
	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)

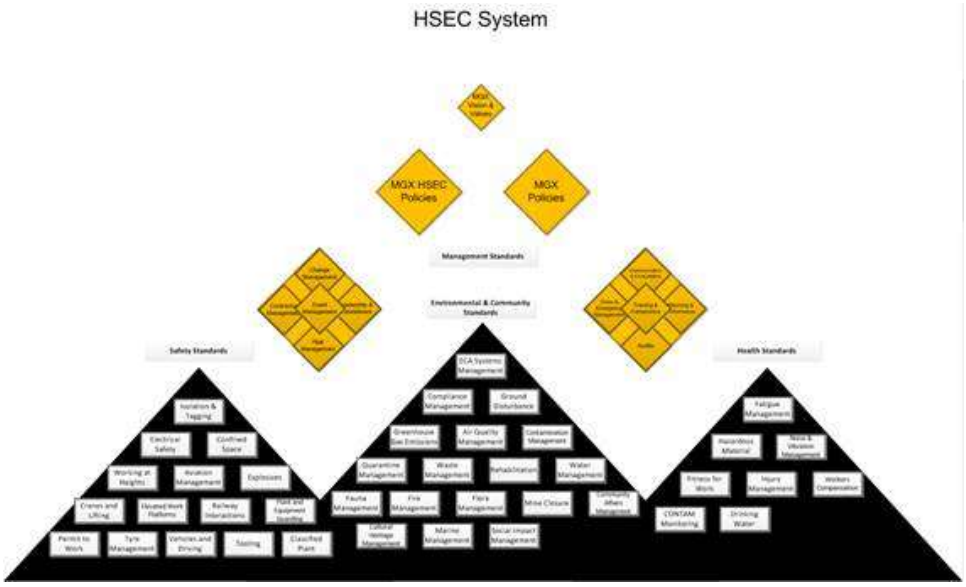
	Great Barrier Reef Marine Park (sections 24B and 24C)
	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

Specify the key reasons why you think the proposed action is likely to have a significant adverse impact on the matters identified above by reference to each matter protected by the EBPC Act identified in section 3 above.

7 Environmental record of the person proposing to take the action

		Yes	No
7.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** Mount Gibson has a site development and mining operations record of environmental management and performance compliance. View publically available information by examining MGM information from its Koolan Island mine at: http://www.mtgibsoniron.com.au/koolan-island/ In accordance with Condition 10 of EPBC 2006/2522 an independent compliance audit was undertaken to assess compliance of EPBC 2006/2522 during January 2016. The audit found KIO to be compliance with all aspects of EPBC 2006/2522.	☑	
7.2	**Provide details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:** **(a) the person proposing to take the action, or** **(b) if a permit has been applied for in relation to the action - the person making the application.** **If yes, provide details**		☑
7.3	**If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework and if and how the framework applies to the action.**	☑	

Mount Gibson applies its Environmental Policy (MGX Reference: MGI-HSEC-CP-POL-003) in concert with its Health Safety Environment and Community System drawing on a competent set of standards and management procedures for planning and executing work. MGM has applied and adopted a series of Standard Working Instructions (SWIs).



Also, view publically available information by examining Mount Gibson Iron performance at:

http://www.mtgibsoniron.com.au/corporate-environmental-documents/

7.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** **Provide name of proposal and EPBC reference number (if known)** i. Koolan Island Iron Ore Mine and Port Facility (EPBC 2006/2522) ii. Acacia East Pit Cutback Mining Project, Koolan Island WA (EPBC 2013/6752)	☑	

8 Information sources and attachments

(For the information provided above)

8.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.

8.2 Reliability and date of information

For information in section 3 and the map required by section 1, specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.

8.3 Attachments

Indicate the documents you have attached. All attachments must be less than three megabytes (3mb) so they can be published on the Department's website. Attachments larger than three megabytes (3mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the locality of the proposed action (section 1)		
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the proposed action in respect to any matters of national environmental significance or important features of the environments (section 3)		
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)		
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3) conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

9 Contacts, signatures and declarations

NOTE: Providing false or misleading information in response to a requirement under Part 7 of the EPBC Act is an offence punishable on conviction by imprisonment and/or fine (section 489 of the EPBC Act).
Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action.

Proposed action title: Koolan Island Mine - Reconstruction of Seawall and Capital Dewatering of Main Pit

9.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action. It may be a trustee (either being an individual or a body corporate) acting on behalf of the trust for which they have responsibility (but not the trust).

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the GBRMP Act[1], this is the person requiring the grant of a GBRMP permission.
The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

Name and Title:	Koolan Iron Ore Pty Ltd Mr Scott De Kruijff General Manager - Operations
Organisation (if applicable):	Koolan Iron Ore Pty Ltd
ACN / ABN (if applicable):	**ABN 87 099 455 277**
Postal address:	Level 1 2 Kings Park Road WEST PERTH 6005 Western Australia PO Box 55 WEST PERTH 6872 Western Australia
Telephone:	(08) 9426 7500
Email:	scott.dekruijff@mtgibsoniron.com.au

COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE FEE(S) THAT WOULD OTHERWISE BE PAYABLE

I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

□ an individual; OR

□ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR

□ **not applicable.**

[1] *If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A,* EPBC Act*). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.*

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

Note: Applications for a waiver must be supported by information in writing setting out the grounds on which the applicant considers that a waiver should be made and the reasons why it should be made. The Minister may, at his or her discretion, waive all or part of a fee that would otherwise be payable in the following circumstances:

- the action's primary objective is to protect the environment, or protect and conserve heritage, in a way that is consistent with the objects of the EPBC Act;
- it is in the public interest to do so; or
- there are other exceptional circumstances justifying the waiver.

The Minister will consider the application within 20 business days.

I would like to apply for a waiver of full or partial fees under regulation 5.21A of the EPBC Regulations. Under regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

□ not applicable.

Declaration:

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.
I understand that giving false or misleading information is a serious offence.
I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:  Date: 20/12/2016

9.2 Designated proponent

Individual or organisation who is proposed to be designated as the proponent if the Minister decides that the action is a controlled action and further assessment and approval is required. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent may or may not be the person proposing to take the action.

Name of proposed proponent: Mr Scott De Kruijff
General Manager - Operations

Koolan Iron Ore Pty Ltd

ACN / ABN (if applicable): ABN 87 008 670 817

Postal address:
Level 1
2 Kings Park Road
WEST PERTH 6005
Western Australia

PO Box 55
WEST PERTH 6872
Western Australia

Telephone: 08) 9426 7500

Email: scott.dekruijff@mtgibsoniron.com.au

Declaration by the proposed proponent:	I ...SCOTT DE KRUIJFF....., the proposed proponent, consent to the proposed designation of myself as the proponent for the purposes of the action described in this referral.
	Date: 20/12/2016
Signature:	
Declaration by the person proposing to take the action:	I ....., the person proposing to take the action, consent to the proposed designation of..... as proponent for the purposes of the action described in this referral.
Signature:	Date: 20/12/2016

9.3 Person preparing the referral information (if different from section 9.1)

Individual or organisation who has prepared the information contained in this referral form.

Name:	Troy Collie
Title:	Project Director – Environment & Approvals
Organisation:	Mount Gibson Iron Ltd
ACN / ABN (if applicable):	ABN 87 008 670 817
Postal address:	PO Box 55 WEST PERTH WA 6872
Telephone:	(08) 9426 7500
Email:	Troy.collie@mtgibsoniron.com.au
Declaration:	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence.
Signature:	 Date: 20/12/2016

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ☒ Completed all required sections of the referral form?
- ☐ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ☐ Provided a map showing the location and approximate boundaries of the project area for the proposed action?
- ☐ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ☐ Provided a digital file (preferably ArcGIS shapefile, refer to guidelines at Attachment A) delineating the boundaries of the referral area?
- ☒ Provided complete contact details and signed the form?
- ☐ Provided copies of any documents referenced in the referral form?
- ☐ Ensured that all attachments are less than three megabytes (3mb)?
- ☐ Sent the referral to the Department (electronic and hard copy preferred)

Geographic Information System (GIS) data supply guidelines

If the area is less than 5 hectares, provide the location as a point layer. If the area greater than 5 hectares, please provide as a polygon layer. If the proposed action is linear (eg. a road or pipeline) please provide a polyline layer.

GIS data needs to be provided to the Department in the following manner:

- Point, Line or Polygon data types: ESRI file geodatabase feature class (preferred) or as an ESRI shapefile (.shp) zipped and attached with appropriate title
- Raster data types: Raw satellite imagery should be supplied in the vendor specific format.
- Projection as GDA94 coordinate system.

Processed products should be provided as follows:

- For data, uncompressed or lossless compressed formats is required - GeoTIFF or Imagine IMG is the first preference, then JPEG2000 lossless and other simple binary+header formats (ERS, ENVI or BIL).
- For natural/false/pseudo colour RGB imagery:
    - If the imagery is already mosaiced and is ready for display then lossy compression is suitable (JPEG2000 lossy/ECW/MrSID). Prefer 10% compression, up to 20% is acceptable.
    - If the imagery requires any sort of processing prior to display (i.e. mosaicing/colour balancing/etc) then an uncompressed or lossless compressed format is required.

Metadata or 'information about data' will be produced for all spatial data and will be compliant with ANZLIC Metadata Profile. (http://www.anzlic.org.au/policies_guidelines#guidelines).

The Department's preferred method is using ANZMet Lite, however the Department's Service Provider may use any compliant system to generate metadata.

Attachment B

Privacy and Confidentiality Notice

The Department is required under section 74(3) of the *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) to publish the information (including personal information of the author and/or third parties) provided in this referral on the internet. The information published may include your personal information.

Information including your personal information included in this referral will be used for the purposes of administering the EPBC Act. The information may be provided to various Commonwealth, State and Territory agencies for the purposes of administering the Act or other Commonwealth, State or Territory legislation. For example, if the proposed action (or a component of it) is to be taken in the GBRMP, the Minister is required to provide a copy of your referral to GBRMPA (see section 73A, EPBC Act). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.

The Department will collect, use, store and disclose the personal information contained in this referral in a manner consistent with its obligations under the *Privacy Act 1988* and the Department's privacy policy.

The Department's privacy policy contains details about how respondents may access and make corrections to personal information that the Department holds about the respondent, how respondents may make a complaint about a breach of an Australian Privacy Principle, and how the Department will deal with that complaint.

A copy of the Department's privacy policy is available at: http://environment.gov.au/privacy-policy.

The Department is not obliged to publish information that the Minister is satisfied in commercial-in-confidence. If you believe that this referral contains information that is commercial-in-confidence, you must clearly identify such information and the reason for its confidentiality at the time of making the referral. The Minister cannot be satisfied that particular information included in a referral is commercial-in-confidence unless you demonstrate to the Minister (by providing reasons in writing) that:

- release of the information would cause competitive detriment to the person; and
- the information is not in the public domain; and
- the information is not required to be disclosed under another law of the Commonwealth, a State or a Territory; and
- the information is not readily discoverable.

The Department is subject to certain legislative and administrative accountability and transparency requirements of the Australian Government including disclosures to the Parliament and its Committees. While the Department will treat all referral information provided in this referral sensitively, any information contained in or relating to a referral, including information identified by a person as commercial-in-confidence, may be disclosed by the Department:

- to its employees and advisers in order to evaluate or assess a referral;
- to the Parliamentary Secretary;
- within the Department or other agencies where this serves the legitimate interest of the Australian Government;
- in response to a request by a House or Committee of the Parliament of the Commonwealth of Australia;
- where information is authorised or permitted by law to be disclosed; and
- where the information is in the public domain other than by the Department's disclosure of that information.