Australian Government
Department of Sustainability, Environment, Water, Population and Communities

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 Australian Government Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal 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 for actions that are 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 that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside 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)
- 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:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of 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.
- the draft Policy Statement titled Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources.
- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

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, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referral Business Entry Point (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, 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. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, 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?

Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently. If a section of the referral document is not applicable to your proposal 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 project 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 three megabytes (3mb) 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 Referral Business Entry Point (email address below) for advice. Attachments larger than three megabytes (3mb) may delay processing of your referral.

Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.

How do I submit a referral?

Referrals may be submitted by mail or email.

Mail to:

Referral Business Entry Point
Environment Assessment Branch
Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
CANBERRA ACT 2601

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

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

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- Follow up with a mailed hardcopy 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.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal 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.

Compliance audits

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park,"* p.2, for more details).

For more information

- call the Department of Sustainability, Environment, Water, Populations and Communities Community Information Unit on 1800 803 772 or
- visit the web site 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

Project title: Mount Peake Project

1 Summary of proposed action

NOTE: You must also attach a map/plan(s) and associated geographic information system (GIS) vector (shapefile) dataset showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(i).

1.1 Short description

Use 2 or 3 sentences to uniquely identify the proposed action and its location.

TNG Limited (TNG), under wholly owned subsidiary Enigma Mining Limited, is proposing to develop the Mount Peake Project (the Project) consisting of:

- the mining of a polymetallic ore body, beneficiation and hydrometallurgical processing of the ore to produce hematite powder (Fe_2O_3), vanadium pentoxide flake (V_2O_5) and titanium dioxide (TiO_2) at the Mount Peake mining area, 280 km north-northwest of Alice Springs in the Northern Territory (NT) (Figure 1);
- transport of the products (Figure 1) to a new railway siding and load-out facility on the Alice Springs to Darwin railway near Adnera; and
- rail transport of products to the Port of Darwin's East Arm Wharf for export (Figure 2).

The description above forms the Project base case. TNG is also assessing the option of locating the hydrometallurgical process plant offsite in which case the mine will export magnetite concentrate from the rail load-out facility.

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 Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

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 proposal 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.

Do not use AMG coordinates.

Table 1 presents coordinates for Mount Peake Mining Area, Camp Facilities, Transport Study Corridor, Gas / Slurry Pipeline Corridor, Rail Siding Load-out Facility and East Arm Wharf. Appendix A provides the location of the Table 1 coordinates.

Table 1 Coordinates for the Proposed Action

No.	Latitude	Longitude	No.	Latitude	Longitude	No.	Latitude	Longitude
Coordinates for the Mount Peake Mining Area								
1	-21.620853	133.244861	**3**	-21.636812	133.292508	**5**	-21.654386	133.286184
2	-21.621339	133.295229	**4**	-21.647426	133.286257	**6**	-21.653996	133.244502
Coordinates for Camp Facilities								
1	-21.637501	133.334718	**3**	-21.643571	133.341943	**5**	-21.652506	133.345831
2	-21.637501	133.341944	**4**	-21.643611	133.345923	**6**	-21.652504	133.334720
Coordinates for the Transport Study Corridor – based on a nominal centre line with +/- 1 km buffer								
1	-21.650746	133.286125	**7**	-21.777231	133.425391	**13**	-21.938799	133.978777
2	-21.650893	133.330333	**8**	-21.803551	133.438645	**14**	-21.923389	134.023152
3	-21.658662	133.345422	**9**	-21.857903	133.455471	**15**	-21.912673	134.054372
4	-21.682827	133.357291	**10**	-21.919694	133.495461	**16**	-21.890344	134.095561
5	-21.711899	133.394206	**11**	-21.920069	133.537082			
6	-21.759039	133.412053	**12**	-21.942693	133.888512			
Coordinates for the Gas / Slurry pipeline Corridor – based on a nominal centre line with +/- 0.5 km buffer								
1	-21.713345	133.396720	**2**	-21.932395	134.000115			
Coordinates for the Rail Siding Load-out Facility								
1	-21.886391	134.095561	**3**	-21.883604	134.116388			
2	-21.874453	134.116396	**4**	-21.895280	134.095563			
Coordinates for Port Ore Storage Facility – centre point								
1	-12.487159	130.896456						
Coordinates for East Arm Wharf								
1	-12.486734	130.896823	**3**	-12.489706	130.888167			
2	-12.481973	130.893774	**4**	-12.491300	130.882739			

1.3 Locality and property description

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

Mount Peake Project Area

The Mount Peak Project Area refers to the mining area, accommodation camp facilities area, transport corridor, infrastructure (gas / slurry pipeline) corridor, and rail siding and load-out facility (Figure 1).

The mining area is located approximately 280 km north-northwest of Alice Springs and approximately 60 km west of the Stuart Highway. The closest town is Barrow Creek, approximately 60 km north east of the mining area.

Mining and processing will occur within the mining area, located within Mineral Lease Application (MLA) 28341 for the mine pit and MLA 29855 for all mining facilities. The accommodation facilities will be located 5 km to the east of the mining area.

A proposed transport corridor for site access and product haulage runs 90 km south-east and then east from the mining area to a proposed new rail siding and load-out facility near Adnera. A proposed infrastructure corridor for a potential gas pipeline and slurry pipeline runs to the north of the transport corridor.

The Mount Peake Project Area is primarily located on the Stirling pastoral station with a small component of the transport corridor located on Anningie pastoral station. The land is dominated by mulga vegetation communities and rocky outcrops, with some areas of bloodwood, spinifex, coolabah, open shrubland and river redgums particularly along braided river bed systems.

Key environmental and social features of, or surrounding the Mount Peake Project Area include (Figure 1):

- the Djilbari Hills approximately 14 km to the south east of the proposed mining area;
- the Walabanba Hills approximately 12 km to the west of the proposed mining area;
- Bloodwood Creek approximately 2.5 km to the north west of the proposed pit;
- Murray Creek approximately 400 m east of the proposed pit at its closest point;
- Mud Hut Swamp, approximately 7.7 km to the north of the proposed mine pit, is considered to be a downstream receptor of Bloodwood Creek;
- Wilora Aboriginal community, approximately 10 km north of the infrastructure corridor, as the nearest sensitive receptor to the infrastructure corridor;
- Stirling Swamp located south of the Wilora Aboriginal community;
- Hanson River approximately 25 km north east of the proposed pit and across which the transport and infrastructure corridors will traverse on-route to the rail siding;
- Stirling Station homestead approximately 50 km east of the mining area and 12 km north of the infrastructure corridor; and
- Anningie pastoral station homestead approximately 30 km south west as the nearest sensitive receptor to the mining area.

East Arm Wharf

East Arm Wharf, owned by the Darwin Port Corporation, is an existing shipping facility within the Port of Darwin, established to provide facilities to serve a number of shipping and cargo markets and the handling of product including manganese and iron ore.

Key environmental features of, or surrounding, the site include (Figure 2):

- the Darwin CBD, approximately 18 km to the north west;
- Catalina Island approximately 2 km to the east;
- South Shell Island 200 m to the south; and
- Charles Darwin National Park to the north and north east.

As a part of Darwin Harbour, the area is characterised by mangrove forest lining the tidal boundaries. There are no established vegetation communities at East Arm Wharf as the site has been cleared or reclaimed to form the existing wharf, cargo storage, stockpile and administration building areas.

1.4	Size of the development footprint or work area (hectares)	Estimated Project footprints are as follows: • Project mining area (including the pit and accommodation facilities) = 425 ha; • Transport corridor = 310 ha (assuming a disturbance width of 35 m); • Infrastructure (gas / slurry pipeline) corridor = 100 ha (assuming a disturbance width of 15 m); • product load-out facility at Adnera = 3.5 ha; and • East Arm Wharf stockpiles and facilities = 3 ha.
1.5	Street address of the site	The mining area will be accessed via a restricted, unsealed road from the Stuart Highway, approximately 60 km south of Barrow Creek.

1.6 Lot description

Describe the lot numbers and title description, if known.

Mount Peake Project Area

Mining and processing will occur within Mineral Lease Application (MLA) 28341 for the mine pit and MLA 29855 for all mining facilities (Figure 1). The accommodation facilities will be located within MLA 29856.

The proposed transport and infrastructure corridors pass from MLA 29855, through Exploration Lease (EL) 29578, EL 27069, Pastoral Lease (PPL) 1057, EL 27941 and PPL 1103 before they cross the Stuart Highway, and then traverse PPL 1138 and PPL 1103 to the Adnera load-out facility.

All tenements lie within the Stirling and Anningie perpetual pastoral leases aside from a portion of crown land adjacent to the Stuart Highway that is intersected by the two corridors.

East Arm Wharf

East Arm Wharf is owned by the Darwin Port Corporation and zoned Industrial (DV) (industrial use, ports) under the town planning scheme.

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.

The Mount Peake Project Area is located in the Central Desert Shire.

East Arm Wharf is located in the Darwin Municipality.

1.8 Time frame

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

TNG proposes to commence construction in the second half of 2014 and commission the plant in the second half of 2015. The life of the mine is expected to be 20 years. Future exploration activity may extend this.

1.9	Alternatives to proposed action Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?		No
		X	Yes, you must also complete section 2.2
1.10	Alternative time frames etc Does the proposed action include alternative time frames, locations or activities?		No
		X	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 3.3 (where relevant).
1.11	State assessment Is the action subject to a state or territory environmental impact assessment?		No
		X	Yes, you must also complete Section 2.5
1.12	Component of larger action Is the proposed action a component of a larger action?	X	No
			Yes, you must also complete Section 2.7
1.13	Related actions/proposals Is the proposed action related to other actions or proposals in the region (if known)?	X	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 this project?	X	No
			Yes, provide details:
1.15	Great Barrier Reef Marine Park Is the proposed action inside the Great Barrier Reef Marine Park?	X	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. 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

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

Figure 3 shows the proposed site layout at the Mount Peake Mining Area.

Mining

The proposed mine will be an open-pit truck and shovel operation. Extracted ore will be transported by haul truck from the mine pit and stockpiled on-site at a run of mine (ROM) pad prior to processing. Mining will commence with a "starter pit" accessing high grade and low strip ratio ore to feed a beneficiation plant. The throughput of the beneficiation plant will be 5 Mtpa initially and the hydrometallurgical plant will be designed for 2.5 Mtpa with an upgrade to 5 Mtpa scheduled after 4 years.

Depth to groundwater within the aquifer associated with the ore body ranges from 20 to 25 metres below ground level (mbgl). The maximum depth of the pit is expected to be 150 to 200 mbgl, thereby intersecting the water table and requiring dewatering to facilitate mining.

The resource is estimated at approximately 160 million tonnes (Mt) and there is the potential to increase the resource size to 500-700 Mt. Some 176 Mt of material is expected to be extracted over the life of the mine, comprising around 93 Mt of ore and 83 Mt of waste. Waste material will be stored in a Waste Rock Dump (WRD).

Processing

Beneficiation

Beneficiation involves crushing, grinding and magnetic separation to produce a concentrate (Figure 4).

Ore will be loaded from the ROM pad to a grizzly by front-end loader with ore broken by a rock crusher. Screened oversize material will be crushed with crushed product conveyed to a primary screen bin feed. Oversize material will be secondary crushed, then recombined with screened undersize material and conveyed to High Pressure Grinding Rolls (HPGR).

The HPGR will reduce the feed size to <1 mm prior to feeding a bank of Rougher Magnetic Separators (RMS) with magnetic separation anticipated to recover some 91% of vanadium, 58% of the iron and 78% of the titanium. The rougher magnetic concentrate will be directed to a ball mill where the material will be further reduced to less than 100 microns prior to cleaning in a bank of Cleaner Magnetic Separators to further upgrade the concentrate. Belt feeders will reduce the moisture content of the concentrate prior to transfer to a stockpile where a front-end loader will feed the material into the leaching circuit for hydrometallurgical processing.

If hydrometallurgical processing is to be undertaken offsite the magnetite concentrate will be either trucked or slurried by pipeline to Adnera siding. It is estimated that up to 1.8 Mtpa of magnetite concentrate will be produced under this scenario.

Both non-magnetic tailings streams are combined and contained in a storage cell.

Conventional tailings deposition will be evaluated against the benefits of dry stacked tailings during the Detailed Feasibility Study.

Hydrometallurgical Processing

Production of vanadium pentoxide, hematite and titanium dioxide will be based on the TIVAN® process, trademarked by TNG. This is a new process developed to extract high purity products from the magnetite concentrate through an acid leach process.

Figure 4 provides a schematic of the hydrometallurgical processing circuit.

Concentrate from the leach feed stockpile will be conveyed to a heated leach tank where it is mixed with acid to make a slurry from which vanadium and iron will be extracted into solution. Filtered residue from the leach process will be stored in the leach residue stockpile pending processing for titanium recovery.

Titanium beneficiation follows. The preferred approach is to use magnetic separation where material from the leach residue stockpile is slurried to a magnetic separator from which concentrate, middlings and tailings are produced. Tailings will be pumped to a thickener, middlings recycled back to the magnetic separator and concentrate pumped to a cleaner magnetic separator that further separates concentrate and tailings. Flotation may also be investigated should the leach residue not be amenable to the magnetic separation technique outlined above.

Pregnant leach solution (PLS) from the leach circuit will be pumped to a reduction and pH adjustment tank with filtered PLS then pumped to the Vanadium Extraction Circuit where vanadium transfers from the aqueous to the organic phase. The aqueous stream, depleted in vanadium, is then subjected to acid recovery resulting in the precipitation of iron.

From the Vanadium Extraction Circuit, organic phase liquor flows to the Organic Stripping Circuit where vanadium is stripped from the organic phase into the aqueous phase and emerges as loaded strip liquor (LSL). LSL is pumped to a vanadium oxidation tank and, following precipitation, product is pumped to a product hopper. Filtered solids precipitate will be conveyed to a calcining rotary kiln to removes moisture. The resultant dried vanadium will be conveyed to a fusion furnace and flaking wheel to melt the vanadium and solidify it into flakes for packaging. Flakes will be passed through a crusher to ensure correct product size and then sealed in drums or bags prior to being locked in sea containers for transportation.

At full capacity the plant is estimated to produce 15,000 tpa of vanadium pentoxide, 1.11 Mtpa of hematite and 375,000 tpa of titanium dioxide.

Reagents used in the process include hydrochloric acid, organic solvent, sulphuric acid, sulphur, sodium hydroxide, sodium chloride, calcium carbonate, oxygen, sodium hypochlorite and flocculent, all commonly used in the mining industry.

Product Transportation and Export

The titanium, vanadium and haematite products (for the integrated plant option), or the intermediate product of magnetite concentrate (for the offsite hydrometallurgical process plant option) will be transported by either road haulage or slurry pipeline to a new rail siding and load-out facility at Adnera. For the integrated plant, loose bulk titanium dioxide and hematite will be stored in product stockpiles with a hardstand area for vanadium container storage (Figure 5).

Should road haulage be the preferred option, it is expected that up to 92 return truck movements will occur per day at peak project activity. To ensure safety for users of the Stuart Highway grade separation at the haul road crossing of the highway will be considered.

Train loading will be via front-end loader to a conveyor and loading bin located over the rail siding. Containers will be loaded via fork lift. Around 10 train movements per week are expected.

At East Arm Wharf bulk product will be unloaded via the existing dump pocket and conveyed to the Darwin Port Corporation nominated Bulk Storage Area (Figure 2). Loose titanium dioxide and hematite (or intermediate magnetite product) will be stored in product stockpiles. Containerised vanadium pentoxide will be stored in a container storage area.

The Project is expected to result in one panamax or handymax ship movement per week.

New Facilities

New facilities proposed at the Mount Peake Project Area include:

- mine access road;
- gas and water pipelines;
- waste rock dump (WRD) and dry stacked tailings cell, or conventional TSF;
- run of mine (ROM) pad;
- beneficiation plant;
- hydrometallurgical plant including acid plant and oxygen generation facility;
- concentrate stockpile;
- leach and salt residue storage cells;
- product stockpiles for titanium dioxide and hematite (or magnetite);
- water treatment ponds or tanks;
- water and waste water treatment plants;
- gas fired power station;
- explosives and detonator magazines;
- construction camp and accommodation village;
- administrative, control, laboratory, workshop and storage buildings;
- gatehouse and weighbridge;
- bulk fuels storage area and water storage tanks;
- workshops and offices;
- rail siding at Adnera;
- product rail load-out facility at Adnera including a hard stand for containerised vanadium and product stockpiles for titanium dioxide and hematite (or magnetite) (Figure 5); and
- air strip.

Additional new facilities required at the Adnera Rail Siding if transport via slurry pipeline is selected (Figure 6) include:

- filtration area with;
    - thickeners;
    - pressure filters;
    - control room; and
    - buffer tanks.
- transfer pond or tank;
- slurry pipeline from the Project Mining Area to Adnera Rail Siding; and
- return water line.

New facilities proposed at the ore storage facility at East Arm Wharf (Figure 2) include:

- product stockpiles for titanium dioxide and hematite;
- laydown area for containerised vanadium pentoxide; and
- reclaim hopper.

Other required infrastructure within the East Arm Wharf precinct, such as conveyors, will be developed as multi-user facilities by the Darwin Port Corporation. Materials handling, including container transfer will be by a third party.

Water Requirements

Approximately 1 GLpa of make-up water will be required for mining, beneficiation, dust suppression, accommodation village operations, Adnera rail siding requirements, and slurry pipeline (if required). Mine site water will be sourced from pit dewatering and, if required, augmented from a purpose built borefield.

Approximately 7 GLpa of make-up water will be required for the integrated hydrometallurgical process plant at the 5 Mtpa peak production.

A process water dam or tank will be constructed to manage plant water supply. Water will be treated to a standard appropriate for its intended use. A Water Treatment Plant (WTP) will be constructed for potable water supply.

Water at East Arm Wharf, for dust suppression and potable use, will be supplied via existing reticulation.

Power and Gas Supply

It is estimated that the beneficiation plant would consume 2 PJ/a of gas for power generation and the hydrometallurgical plant would consume a further 21.8 PJ/a of gas for both power generation and thermal heating requirements.

At full production the power draw for the hydrometallurgical process plant is estimated at 44 megawatts (MW) and 26 MW for the mine and magnetic concentrator.

Power may be supplied by an on-site gas fired power station or other on-site power generation facility. If natural gas is selected as the preferred option, gas supply from the Amadeus Basin to Darwin Natural Gas Pipeline will be supplied via an off-take lateral running west to the mining area along the infrastructure corridor.

Power at East Arm Wharf will be grid supplied.

Waste and Emissions

A WRD (approximately 40 ha) will be constructed at the mine site to contain waste rock.

Either a storage cell to contain dry stacked tailings from the beneficiation plant or a conventional TSF will be constructed.

Waste streams from the hydrometallurgical plant will be a leach residue and a crystalline salt product. Both of these streams will be contained in purpose built cells and an investigation into the suitability for these waste streams to be used as by-product in either road base applications or geopolymer concrete applications will be undertaken.

Air emissions will occur from:

- vacuum pumps, vapours evaporating in tanks, oxide drying and calcination in the hydrometallurgical plant; and
- the power station stack containing NO_X, CO, particulate matter and negligible SO_2.

Two pump stations will be installed to collect sewage and wastewater for treatment in a Wastewater Treatment Plant. One station will service the processing plant and mine site with a second station servicing the construction camp / accommodation village.

There will be no uncontrolled discharges of untreated process water at the Mount Peake Project site.

Workforce and Accommodation

The construction and operations workforces are estimated to peak at 350 and 250 personnel respectively at Mount Peake for the integrated hydrometallurgical process plant case and 350 and 175 personnel for the stand alone beneficiation plant and mine.

A construction camp will be established within the New Camp Ancillary Lease to the east of the mine site (Figure 1). This will be converted to a fully serviced accommodation village for the operations workforce that will be staffed by workers on either a fly-in, fly-out (FIFO) or drive-in, drive-out (DIDO) roster.

Closure and Rehabilitation

Closure and rehabilitation at Mount Peake will recognise the following objectives:

- reduce the need for long term monitoring and maintenance through design and construction of landforms that are geotechnically and geochemically stable;
- develop landforms that are consistent with the surrounding landscape;
- develop an environmental monitoring and reporting program which is focused towards demonstrating the achievement of closure outcomes;
- undertake progressive rehabilitation of the site during operations; and
- ensure that the full cost of decommissioning and rehabilitation is understood and that a mechanism for funding exists.

A concept for mine closure will be presented as a component of future approval documentation with the plan finalised in consultation with the regulator.

Post mining, land use is expected to be largely returned to pastoralism.

2.2 Alternatives to taking the proposed action

This should be a detailed description outlining any feasible alternatives to taking the proposed action (including not taking the action) that were considered but are not proposed (note, this is distinct from any proposed alternatives relating to location, time frames, or activities – see section 2.3).

The nature of mineral resource development projects means that they can only occur where a commercially viable resource is present. The alternative to not developing the Mount Peake Project is the “do nothing” option.

Developing the Mount Peake Project will allow Australia to supply an international market where the products are in high demand. Vanadium pentoxide is a strategic metal used as a strengthening additive in steel and other iron and titanium alloys. Vanadium is also used as an additive in high carbon steel applications such as high speed power tools. A rapidly growing and exciting market is the use in Vanadium Redox Batteries (VRB) technology. Vanadium is expected to grow rapidly in demand and price as the above markets grow. Mount Peake could be one of the largest suppliers of high purity V_2O_5. Titanium dioxide is also a strategic metal used in pigments and, because of its high strength to weight ratio, is used in many high strength alloy applications including the high technology and aerospace industry. Hematite is a high quality iron product produced in a very pure form (69.2% Fe at 99.9% purity) and will be marketed in the pigment industry as red ochre and also as a feedstock for blast furnaces. The Mount Peake hematite product purity provides a range of market opportunities nationally and internationally.

Not developing the project will result in the loss of opportunity to strengthen the local economy through construction and operational expenditure, employment, the provision of services, and the loss of taxes and royalties to the Northern Territory economy.

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) you must complete this section. 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, you must also complete (where relevant) the details in sections 1.2-1.9, 2.4-2.7, 3.3 and 4. 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.

Timeframes

The Project is currently at a Pre-feasibility Study stage and information on some of the Project elements is still being refined. Project refinement is occurring through progression of a Definitive Feasibility Study which is due for completion in early 2014. The results of the study may modify the timeframe for commencement of construction and the overall mine life.

Processing

The base case assumes that the hydrometallurgical plant will be integrated with the mine. An option being considered is to locate the plant offsite with the decision being driven by availability of gas, water and acid. If a decision is made to establish the plant at an alternative location, this will be subject to separate environmental assessment.

Tailings Storage

Conventional tailings deposition will be evaluated against the benefits of dry stacked tailings during the Detailed Feasibility Study.

Product Transport from Mine to Rail

For the integrated plant option, the titanium, vanadium and haematite products would be transported from the mine area by road haulage to a new rail siding and load-out facility at Adnera (Figure 1). Loose bulk titanium dioxide and hematite will be stored in product stockpiles with a hardstand area for vanadium container storage (Figure 4).

For the offsite hydrometallurgical process plant option, magnetite concentrate will be transported from the mine area by either road haulage or slurry pipeline to Adnera (Figure 1). If slurried the concentrate will be dewatered and stockpiled prior to train loading (Figure 5).

For the purposes of investigation, study areas for the haul road and infrastructure (gas and slurry pipelines) corridors have been established with widths of 2 km and 1 km respectively. Once the final alignments are confirmed, ground disturbance is likely to be contained to widths of 35 m and 15 m respectively.

2.4 Context, planning framework and state/local government requirements

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). Describe any Commonwealth or state legislation or policies under which approvals are required or will be considered against.

Commonwealth

Environment Protection and Biodiversity Conservation Act 1999.

Northern Territory

The Project will likely require approvals, permits and licences for various components, including:

- an approval under the *Northern Territory Environment Protection Authority Act 2012;*
- approval of a Mine Management Plan under the *Mining Management Act 2001*;
- a permit under the *Heritage Act 2011* to destroy or damage archaeological sites (if needed);
- the grant of Mineral Leases, Mineral Leases (for ancillary purposes) and Access Authorities (for transport and infrastructure corridors) under the *Mineral Titles Act 2012*;
- a permit under the *Dangerous Goods Act 1998* for blasting activities;
- an extractive permit under the Department of Mines and Energy Guidelines for the development of any borrow pit sites outside of approved mining areas;
- a Waste Discharge Licence (WDL) for any water discharge from the site under Section 74 of the *Water Act 1992*; and
- any wastewater treatment plant may be subject to requirements under the *Public Health Act 1987* and Regulations.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

If you have identified that the proposed action will be or has been subject to a state or territory environmental impact statement (in section 1.11) you must complete this section. Describe any environmental assessment of the relevant impacts of the project that has been, is being, or will be carried out under state or territory legislation. Specify the type and nature of the assessment, the relevant legislation and the current status of any assessments or approvals. Where possible, provide contact details for the state/territory assessment contact officer.
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).

A Notice of Intent for the development of the Mount Peake Project was submitted to the Northern Territory Minister for Mines and Energy under the Northern Territory *Mining Management Act 2001* in June 2013.

The Notice of Intent was subsequently referred to the Northern Territory Environment Protection Authority to determine whether formal assessment of the project will occur under the *Northern Territory Environment Protection Authority Act 2012*. A decision on assessment is pending, however it is expected that the Project will be formally assessed under the Environment Protection Authority Act.

Baseline ecological surveys (flora and fauna) of the Mount Peake Project Area (mine area and transport corridors) were conducted in April 2013 to determine the potential implications of the Project under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and to provide information for decisions made under the *Territory Parks and Wildlife Conservation Act 2006* and *Northern Territory Environment Protection Authority Act 2012*. More detail of these surveys is provided in Section 3.1 and 3.3.

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.

To date, TNG has held discussions with Northern Territory government agencies including the Department of Mines and Energy, Environment Protection Authority, Darwin Port Corporation and Alice Springs Town Council. The Chief Minister of the Northern territory has also been briefed.

The pastoralist at Stirling Station has been provided details of the Project and has provided assistance to TNG and its consultants in relation to exploration activities, transport corridors and baseline environmental investigations.

TNG has worked with the Central Land Council (CLC) and traditional owners to obtain Sacred Site Clearance Certificates for exploration activities.

TNG attended an on-country meeting for the Mount Peake Project with native title holders, Stirling Station representatives and the CLC at Stirling Station on 4 April 2013. TNG was encouraged by the number of attendees and felt that the meeting was well organised, well run and beneficial to all involved.

No public consultation has occurred to date. This will be undertaken as a component of completing approvals under Northern Territory legislation.

2.7 A staged development or component of a larger project

If you have identified that the proposed action is a component of a larger action (in section 1.12) you must complete this section. 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 proposal (eg. 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).

Not applicable

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising 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.

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 consider whether a bioregional plan is relevant to your proposal. The Minister has prepared four marine bioregional plans (MBP) in accordance with section 176. It is likely that the MBP's will be more commonly relevant where listed threatened species, listed migratory species or a Commonwealth marine area is considered.

Note that even if your proposal 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). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

No World Heritage Properties are relevant to the Mount Peake Project Area or the East Arm Wharf.

Nature and extent of likely impact

Address any impacts on the World Heritage values of any World Heritage property.

Not applicable.

3.1 (b) National Heritage Places

Description

No National Heritage Places occur within 10 km of the Mount Peake Project Area.

Three National Heritage Places lie within 10 km of the East Arm Wharf: Catalina 4, Catalina 5 and Catalina 6. These sites relate to three US military aeroplanes sunk during WWII. They rest off-shore, at water depths of at least 12 m, and will not be impacted by the Project.

Nature and extent of likely impact

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

National Heritage Places will not be impacted by the Project.

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

Description

No Wetlands of International Importance (Ramsar wetlands) are relevant to the Mount Peake Project Area or the East Arm Wharf.

Nature and extent of likely impact

Address any impacts on the ecological character of any Ramsar wetlands.

Not applicable.

3.1 (d) Listed threatened species and ecological communities

The following information sources were used to generate information on threatened species and ecological communities that may occur in the Project Area:

Mount Peake Project Area

- Report generated by the PMST. A 50 km buffer was used;
- NT Land Resource Management (LRM) flora and fauna database (Lat: -21.41213 to -22.13333; Long: 133.03458 to 134.12140); and
- Baseline flora and fauna survey of the mine area and transport corridors (GHD; 9 – 16 April 2013).

East Arm Wharf

- Report generated by the Protected Matters Search Tool (PMST). A 10 km buffer was used.

The NT (LRM) flora and fauna database was not searched for the wharf area because the East Arm Wharf area has been historically cleared or reclaimed to form the existing wharf, cargo storage, stockpile and administration building areas, and supports no habitat for threatened communities, flora or fauna.

Description

Threatened Ecological Communities

No EPBC Act-listed Ecological Communities occur within or near the Mount Peake Project Area or the East Arm Wharf. Only one ecological community in the NT is listed as threatened under the EPBC Act (Arnhem Plateau Sandstone Shrubland Complex), and this does not occur within or near the Project or wharf areas.

Threatened Flora Species

Mount Peake Project Area

The NT (LRM) flora database indicates that the following conservation significant flora species have been recorded within 10 km of the proposed infrastructure corridors (Figure 8):

- Dwarf Desert Spike-rush *Eleocharis papillosa* - listed as Vulnerable under the EPBC Act; and
- Giant Sweet Potato *Ipomoea polpha* subsp. *latzii* - listed as Near Threatened under the *Territory Parks and Wildlife Conservation Act 2006* (TPWC Act).

Dwarf Desert Spike-rush occurs within freshwater and semi-saline ephemeral wetlands, with above-ground plant material emerging from tubers in response to inundation or flooding. Associated species include Coolabah *Eucalyptus coolabah*, chenopod spp. and *Eragrostis spp* (DSEWPaC 2010). Marginal habitat for this species was observed within the Mount Peake Project Area; however, no individuals were observed at the time of the survey.

Giant Sweet Potato typically occurs in Mulga *Acacia aneura* shrublands on red earth soils, and occasionally on adjacent sandplains in association with Spinifex *Triodia basedowii* (DSEWPaC 2010). All known populations *of* Giant Sweet Potato occur within a few kilometres of low rocky ranges and are generally restricted to areas receiving surface water flows (i.e. 'runon' areas). Suitable habitat for this species was observed within the Mount Peake Project Area during the GHD field survey, however, no individuals were recorded at that time. Anecdotal evidence (Station owner pers. comm. 2013) also suggests that this taxon is likely to occur within close proximity of the infrastructure corridor.

It should be noted that neither of the above flora species were likely to be observed during the GHD survey due to the prolonged dry conditions preceding the survey and the morphology of both species (i.e. tuberous with above-ground material dying back during dry conditions). Further surveys following substantial rainfall are required to assess the presence of each species within the Project Area.

East Arm Wharf

One EPBC Act-listed flora species was identified by the PMST for the East Arm Wharf area:

- *Hibiscus brennanii*, a shrub (Vulnerable).

The East Arm Wharf area has been historically cleared or reclaimed to form the existing wharf, cargo storage, stockpile and administration building areas. Consequently, the area supports no established vegetation communities or habitat for threatened flora. This species is considered highly unlikely to occur at the East Arm Wharf area.

Threatened Fauna Species

Mount Peake Project Area

Sixteen EPBC Act-listed threatened fauna species are identified by the PMST and/or the NT (LRM) fauna database for the Mount Peake Project Area (mine area and transport corridors) (50 km buffer for PMST). These include ten species of mammals, five species of birds and one species of reptile (Table 2). Four species (all mammals) considered Extinct under the EPBC Act are not included.

The baseline fauna survey of the Mount Peake Project Area (mine area and transport corridors) in April 2013 sampled 16 sites over the course of seven days (four nights at each site). No EPBC Act-listed species were confirmed present in the Project area during those baseline fauna surveys. However, indirect evidence (i.e. diggings and ground scratchings) was detected at some sites which potentially indicates the presence of two species of mammal (Bilby *Macrotis lagotis* and Crest-tailed Mulgara *Dasycercus cristicauda*). There are at least 33 historical records of the Bilby in this area, but none since 1969 (NT LRM Database). There is one old historical record (1901) of a mulgara in this area: this record is named Brush-tailed Mulgara (*Dasycercus blythi*), but because these species were synonymous for many years, it is more likely to be the Crest-tailed Mulgara (*Dasycercus cristicauda*) (Note, the Brush-tailed Mulgara is now considered to be restricted to south-eastern NT, and to have never occurred in the Mount Peake area).

The species most recently recorded in or near the Project area is the Black-footed Rock-wallaby *Petrogale lateralis* (2006, NT Database). There are two recent records approximately 7 km east of the proposed camp facilities (Figure 7). This species is a habitat specialist (rocky ranges and slopes) and is likely to occur in any suitable habitat throughout the area. Most of the area covered by the mine area and proposed transport corridors is not typically suitable habitat for rock-wallabies, but there are rocky outcrops scattered throughout the area that are likely to be suitable.

All other species included in Table 2 either have not been recorded in or near the Project area for many years, or have not been recorded there at all. These species, if present, are likely to be very rare. Four of the species are considered to be extinct in the NT (Extinct, Extinct in the Wild, or Regionally Extinct under the TPWC Act). The Southern Marsupial Mole (*Notoryctes typhlops*) is a subterranean species and is likely to be extremely difficult to detect. Its likelihood of presence is unknown.

Table 2 EPBC Act-listed Threatened Fauna species identified for the Mount Peake Project Area (mine area and transport corridors) (50 km buffer)

Common Name	Scientific Name	EPBC status	NT status (TPWC)	Source	Most recent (LRM data)
Mammals					
Brush-tailed Mulgara	*Dasycercus blythi*	VU	VU	NT LRM Database	1901
Crest-tailed mulgara	*Dasycercus cristicauda*	VU	VU	PMST	NA
Kowari	*Dasyuroides byrnei*	VU	RX	NT LRM Database	1901
Western Quoll	*Dasyurus geoffroii*	VU	RX	NT LRM Database	1969
Red-tailed Phascogale	*Phascogale calura*	EN	RX	NT LRM Database	1901
Golden Bandicoot	*Isoodon auratus*	VU	EN	NT LRM Database	1969
Bilby	*Macrotis lagotis*	VU	VU	PMST / NT LRM Database	1969
Mala	*Lagorchestes hirsutus*	EN	EW	NT LRM Database	1969
Black-footed Rock-wallaby	*Petrogale lateralis*	VU	NT	PMST / NT LRM Database	2006
Southern Marsupial Mole	*Notoryctes typhlops*	EN	VU	PMST / NT LRM Database	1901
Birds					
Malleefowl	*Leipoa ocellata*	VU	CR	NT LRM Database	1930
Red Goshawk	*Erythrotriorchis radiatus*	VU	VU	PMST	NA
Australian Painted Snipe	*Rostratula australis*	EN	VU	PMST	NA
Princess Parrot	*Polytelis alexandrae*	VU	VU	PMST	NA
Night Parrot	*Pezoporus occidentalis*	EN	CR	NT LRM Database	1930
Reptiles					
Great Desert Skink	*Liopholis kintorei*	VU	VU	PMST	NA

VU = Vulnerable; EN = Endangered; CR = Critically Endangered; EW = Extinct in the wild; RX = Regionally Extinct; NT = Near Threatened; TPWC = *Territory Parks and Wildlife Conservation Act 2006*

East Arm Wharf

Twenty-three EPBC Act-listed threatened fauna species are identified by the PMST for the East Arm Wharf (10 km buffer). These include six species of mammals, five species of birds, seven species of reptiles and five species of sharks (Table 3).

Eleven species (five mammals, five birds, one reptile) are predominantly terrestrial. The East Arm Wharf area has been historically cleared or reclaimed to form the existing wharf, cargo storage, stockpile and administration building areas, and supports no habitat for any of these threatened fauna.

Twelve species (one mammal, six reptiles and five sharks) are marine fauna. The East Arm Wharf is an existing wharf, and the Mount Peake Project is expected to have no impact on the marine environment and its fauna.

Table 3 EPBC Act-listed Threatened Fauna species identified for the East Arm Wharf area

Common Name	Scientific Name	EPBC status	Habitat
Mammals			
Northern Quoll	*Dasyurus hallucatus*	EN	Terrestrial
Northern Brush-tailed Phascogale	*Phascogale pirata*	VU	Terrestrial
Bare-rumped Sheath-tailed Bat	*Saccolaimus saccolaimus*	CR	Terrestrial
Brush-tailed Rabbit-rat	*Conilurus penicillatus*	VU	Terrestrial
Water Mouse	*Xeromys myoides*	VU	Terrestrial/intertidal
Humpback Whale	*Megaptera novaeangliae*	VU	Marine
Birds			
Partridge Pigeon	*Geophaps smithii*	VU	Terrestrial
Red Goshawk	*Erythrotriorchis radiatus*	VU	Terrestrial
Australian Painted Snipe	*Rostratula australis*	EN	Terrestrial
Masked Owl (northern)	*Tyto novaehollandiae kimberli*	VU	Terrestrial
Gouldian Finch	*Erythrura gouldiae*	EN	Terrestrial
Reptiles			
Loggerhead Turtle	*Caretta caretta*	EN	Marine
Green Turtle	*Chelonia mydas*	VU	Marine
Hawksbill Turtle	*Eretmochelys imbricata*	VU	Marine
Olive Ridley	*Lepidochelys olivacea*	EN	Marine
Flatback Turtle	*Natator depressus*	VU	Marine
Leatherback Turtle	*Dermochelys coriacea*	EN	Marine
Plains Death Adder	*Acanthophis hawkei*	VU	Terrestrial
Sharks			
Northern River Shark	*Glyphis garricki*	EN	Marine/Aquatic
Dwarf Sawfish	*Pristis clavata*	VU	Marine/Aquatic
Freshwater Sawfish	*Pristis microdon*	VU	Marine/Aquatic
Green Sawfish	*Pristis zijsron*	VU	Marine/Aquatic
Whale Shark	*Rhincodon typus*	VU	Marine

VU = Vulnerable; EN = Endangered; CR = Critically Endangered

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.

Mount Peake Project Area

Two threatened flora species (dwarf Desert Spike-rush *E. papillosa* and *Giant Sweet potato I. polpha* subsp. *latzii*) may occur on site and may be impacted by the Project. For each species, the level of impact (i.e. whether or not it is considered significant according to the published significance guidelines for the EPBC Act) depends on its population size and distribution in the Project area and broader area. Without further investigations, these parameters are unknown.

Four threatened fauna species (Bilby *Macrotis lagotis,* Crest-tailed Mulgara *Dasycercus cristicauda,* Black-footed Rock-wallaby *Petrogale lateralis* and Southern Marsupial Mole *Notoryctes typhlops*) may occur on site and may be impacted by the Project. For each species, the level of impact (i.e. whether or not it is considered significant according to the published significance guidelines for the EPBC Act) depends on its population size and distribution in the Project area and broader area. Without further investigations, these parameters are unknown.

East Arm Wharf

No impacts on Threatened Ecological Communities or Species are expected at the East Arm Wharf.

3.1 (e) Listed migratory species

Description

Mount Peake Project Area

Seven species (all birds) predicted or known to occur within the Mount Peake Project Area are listed as Migratory under the EPBC Act (Table 4). Of these, the Rainbow Bee-eater (*Merops ornatus*) is the only one that is known to occur historically (NT LRM Database), and this species was detected during the baseline fauna survey by GHD in April 2013.

Each of these Migratory species occupies a very broad area that includes much if not all of the Australian mainland, and none is linked strongly to habitats in the project area that are likely to be impacted by the project.

Table 4 EPBC Act-listed Migratory fauna species identified for the Mount Peake Project Area (mine area and transport corridors) (50 km buffer)

Common Name	Scientific Name	Source
Australian Painted Snipe	*Rostratula australis*	PMST
Fork-tailed Swift	*Apus pacificus*	PMST
Cattle Egret	*Ardea ibis*	PMST
Oriental Plover	*Charadrius veredus*	PMST
Oriental Pratincole	*Glareola maldivarum*	PMST
Rainbow Bee-eater	*Merops ornatus*	PMST / NT LRM Database / GHD
Great Egret	*Ardea alba*	PMST

East Arm Wharf

Forty-seven species (seven mammals, 32 birds, seven reptiles and one shark) predicted to occur at or near the East Arm Wharf are listed as Migratory under the EPBC Act (Table 5).

Fourteen of the species (all of the mammals, six of the seven reptiles, and the shark) are predominantly marine fauna. The East Arm Wharf is an existing wharf, and the Mount Peake Project is not expected to have an impact on the marine environment and its fauna.

Nineteen of the species are coastal or intertidal shorebirds. The East Arm Wharf is an existing wharf and has no habitat for these species.

The remaining species occur in terrestrial, coastal and/or intertidal habitats. These habitats in the East Arm Wharf area are highly modified, due to the historical clearing or land-reclamation to form the existing wharf, cargo storage, stockpile and administration building areas.

Table 5 EPBC Act-listed Migratory fauna species identified for East Arm Wharf (10 km buffer)

Common Name	Scientific Name	Habitat
Mammals		
Dugong	*Dugong dugon*	Marine
Bryde's Whale	*Balaenoptera edeni*	Marine
Humpback Whale	*Megaptera novaeangliae*	Marine
Indo-Pacific Humpbacked Dolphin	*Sousa chinensis*	Marine
Indo-Pacific Bottlenose Dolphin	*Tursiops aduncus*	Marine
Killer Whale	*Orcinus orca*	Marine
Irrawaddy Dolphin	*Orcaella brevirostris*	Marine
Birds		
Fork-tailed Swift	*Apus pacificus*	Aerial
Eastern Great Egret	*Ardea modesta*	Intertidal / Terrestrial
Cattle Egret	*Ardea ibis*	Intertidal / Terrestrial
White-bellied Sea-eagle	*Haliaeetus leucogaster*	Terrestrial / Marine
Pacific Golden Plover	*Pluvialis fulva*	Intertidal
Grey Plover	*Pluvialis squatarola*	Intertidal
Lesser Sand Plover	*Charadrius mongolus*	Intertidal
Greater Sand Plover	*Charadrius leschenaultii*	Intertidal

Oriental Plover	*Charadrius veredus*	Intertidal
Australian Painted Snipe	*Rostratula australis*	Terrestrial (wetlands)
Black-tailed Godwit	*Limosa limosa*	Intertidal
Bar-tailed Godwit	*Limosa lapponica*	Intertidal
Little Curlew	*Numenius minutus*	Intertidal
Whimbrel	*Numenius phaeopus*	Intertidal
Eastern Curlew	*Numenius madagascariensis*	Intertidal
Common Sandpiper	*Actitis hypoleucos*	Intertidal
Grey-tailed Tattler	*Tringa brevipes*	Intertidal
Ruddy Turnstone	*Arenaria interpres*	Intertidal
Great Knot	*Calidris tenuirostris*	Intertidal
Red Knot	*Calidris canutus*	Intertidal
Sanderling	*Calidris alba*	Intertidal
Red-necked Stint	*Calidris ruficollis*	Intertidal
Sharp-tailed Sandpiper	*Calidris acuminata*	Intertidal
Curlew Sandpiper	*Calidris ferruginea*	Intertidal
Oriental Pratincole	*Glareola maldivarum*	Coastal
Little Tern	*Sternula albifrons*	Coastal / Marine
Rainbow Bee-eater	*Merops ornatus*	Terrestrial
Cicadabird	*Coracina tenuirostris*	Terrestrial
Arafura Fantail	*Rhipidura dryas (as rufifrons)*	Terrestrial
White-browed Robin	*Poecilodryas superciliosa*	Terrestrial
Barn Swallow	*Hirundo rustica*	Terrestrial
Gouldian Finch	*Erythrura gouldiae*	Terrestrial
Reptiles		
Saltwater Crocodile	*Crocodylus porosus*	Intertidal / Marine
Loggerhead Turtle	*Caretta caretta*	Marine
Green Turtle	*Chelonia mydas*	Marine
Hawksbill Turtle	*Eretmochelys imbricata*	Marine
Olive Ridley	*Lepidochelys olivacea*	Marine
Flatback Turtle	*Natator depressus*	Marine
Leatherback Turtle	*Dermochelys coriacea*	Marine
Sharks		
Whale Shark	*Rhincodon typus*	Marine

Nature and extent of likely impact

Address any impacts on the members of any listed migratory species, or their habitat.

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species;
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

None of these is likely to occur for Migratory species as a result of this Project.

3.1 (f) Commonwealth marine area

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

Description

The PMST report identified no Commonwealth Marine Areas within or near the Mount Peake Project Area or East Arm Wharf.

Species

Mount Peake Project Area

The PMST report for the Mount Peake Project Area identified seven fauna species (all birds) listed as Marine under the EPBC Act.

East Arm Wharf

The PMST report for the East Arm Wharf identified 72 fauna species (11 mammals, 34 birds and 27 reptiles) listed as Marine under the EPBC Act.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth marine area.

The Marine status of a species applies to Commonwealth Marine Areas, which is defined as any part of the sea, including the waters, seabed, and airspace, within Australia's exclusive economic zone and/or over the continental shelf of Australia, that is not State or Northern Territory waters. Typically, the Commonwealth Marine Area stretches from 3 to 200 nautical miles (approximately 5.5 to 370.4 km) from the coast. Neither the East Arm Wharf area nor the Mount Peake Project Area is within a Commonwealth Marine Area. The Project is not expected to impacts on any Commonwealth Marine Area.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, 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.

The PMST report identified no Commonwealth Land within or near the Mount Peake Project Area.

The PMST report identified the presence of 19 areas that may be Commonwealth Land within 10 km of East Arm Wharf.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth land. 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.

Developments at East Arm Wharf will not result in offsite impacts and will have no impact any areas of Commonwealth Land.

3.1 (h) The Great Barrier Reef Marine Park

Description

The Project Area is not within the vicinity of the Great Barrier Reef Marine Park

Nature and extent of likely impact

Address any impacts on any part of the environment of the Great Barrier Reef Marine Park.

Note: If your action occurs in the Great Barrier Reef Marine Park you may also require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If so, section 37AB of the GBRMP Act provides that your referral under the EPBC Act is deemed to be an application under the GBRMP Act and Regulations for necessary permissions and a single integrated process will generally apply. Further information is available at www.gbrmpa.gov.au

No aspect of the Project will impact the marine park.

3.1 (i) A water resource, in relation to coal seam gas development and 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.

The Project is not is a coal seam gas development or large coal mining development.

Nature and extent of likely impact

Address any impacts on water resources. Your assessment of impacts should refer to the draft *Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources*.

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 your project:

- 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?	X	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?	X	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?	X	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?	X	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?	X	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))		

3.3 Other important features of the environment

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, you must complete each of the details below (where relevant) for each alternative identified.

3.3 (a) Flora and fauna

Mount Peake Project Area

The following information sources were used to generate information on flora and fauna species and ecological communities that may occur in the Mount Peake Project Area:

- Report generated by the PMST. A 50 km buffer was used;
- NT Land Resource Management (LRM) flora and fauna database (Lat: -21.41213 to -22.13333; Long: 133.03458 to 134.12140); and
- Baseline flora and fauna survey of the mine area and transport corridors (GHD, 9 – 16 April 2013).

East Arm Wharf

Because the East Arm Wharf area has been historically cleared or reclaimed to form the existing wharf, cargo storage, stockpile and administration building areas, and supports no habitat for threatened communities, flora or fauna, the report generated by the PMST was the only information source used to identify the ecological attributes of the East Arm Wharf. Consequently, all ecological communities, flora species and fauna species are limited to those listed under the EPBC Act, which are described in Section 3.1 above.

Ecological Communities

All vegetation communities

The Mount Peake Project Area lies within the Burt Plain bioregion (DSEWPaC 2013). The following key vegetation communities were identified as potentially present within the Mount Peake Project Area following a review of desktop information and aerial imagery:

- Bloodwood *Corymbia terminalis* low open woodland over spinifex *Triodia pungens* hummock grassland understorey on sand plains;
- Dead Finish *Acacia tetragonaphylla* open shrubland on gravelly plains and low hills;
- River Red Gum *Eucalyptus camaldulensis* open woodland fringing major water courses;
- Mulga woodland *Acacia aneura* open woodland on loamy sand plains; and
- Coolibah *Eucalyptus victrix* woodland and wooded swamp.

NT-listed communities (TPWC Act)

There is currently no mechanism for listing Threatened Ecological Communities under NT legislation.

Flora Species

All flora species

A total of 251 species from 47 families were recorded from the Mount Peake Project Area during the GHD field survey. Three collections could not be identified beyond genus level due to the lack of flowering parts or fruiting bodies or because they were only found in juvenile form.

NT-listed species (TPWC Act)

No listed threatened species under the TPWC Act were recorded from the Mount Peake Project Area during the GHD field survey. However, potentially occurring threatened species were unlikely to be observed during the GHD survey due to the prolonged dry conditions preceding the survey. Further surveys following substantial rainfall are required to assess the presence of such species within the Project Area (refer Section 3.1 d).

Fauna Species

All fauna species

In total, 280 fauna species are identified for the Mount Peake Project Area. This species list is derived from a combination of information contained in the PMST report (22 species), NT LRM database (249 species), and the GHD baseline fauna survey in April 2013 (114 species).

Of the 280 species, 268 (40 mammals, 145 birds, 74 reptiles and nine amphibians) are native to the Northern Territory and 12 species (11 mammals and one bird) are non-native.

Thirteen of the 22 species (four mammals, eight birds and one reptile) predicted by the PMST to occur in the Mount Peake Project Area have not been recorded historically (LRM database). One of the mammals (Crest-tailed Mulgara *Dasycercus cristicauda*), may have been detected (through indirect evidence, i.e. diggings and ground scratchings) during the baseline fauna survey by GHD in April 2013.

Eighteen species (11 mammals, three birds and four reptiles) detected during the GHD baseline fauna survey in April 2013 have not previously been recorded in the area.

Seven days of intensive fauna sampling by six zoologists in April 2013, using a range of observations and trapping methods, resulted in a species list of 114 species (22 mammals, 58 birds and 34 reptiles). This is less than half of the number of species (249) recorded from the area historically, which suggests that many of the fauna species identified for the Project area are likely to be occasional or seasonal visitors or vagrants to the area. Some species that were recorded historically (mostly small to medium-sized mammals) are now considered to be extinct in the Northern Territory.

NT-listed species (TPWC Act)

In all, 33 fauna species identified for the Mount Peake Project Area are listed as threatened under NT legislation (TPWC Act) (Table 6). Sixteen of these are also listed as threatened under the EPBC Act, and were discussed in Section 3.1(d) above. A further four (all mammals) are considered to be extinct in the NT (Extinct, Extinct in the Wild, or Regionally Extinct).

The remaining 13 species (four mammals, five birds, two reptiles and two frogs) are labelled with an asterisk in Table 6 and discussed below. All of these species have been recorded historically (NT LRM Database), and five species (three birds and two reptiles) were recorded during the GHD baseline fauna survey in April 2013.

The four mammals (Kultarr *Antechinomys laniger,* Common Brushtail Possum (Southern N.T.) *Trichosurus vulpecula vulpecular*, Spectacled Hare-wallaby *Lagorchestes conspicillatus* and Northern Nailtail Wallaby *Onychogalea unguifera*) have the potential to occur in the Project area. The Kultarr, Hare-wallaby and Nailtail Wallaby could occur anywhere in open woodland or shrubland, which includes most of the Project area. The Brushtail Possum is most likely along the waterways, where large River Red-gums provide hollows for dens. The Nailtail Wallaby and the Brushtail Possum have not been recorded since 1969, while the other two species have been recorded more recently.

The five birds (Emu *Dromaius novaehollandiae*, Grey Falcon *Falco hypoleucos*, Australian Bustard *Ardeotis australis*, Bush Stone-curlew *Burhinus grallarius* and Yellow-rumped Mannikin *Lonchura flaviprymna*) are either known to occur or have the potential to occur within the Project Area. The Emu, Grey Falcon and Australian Bustard were all recorded during the baseline fauna survey by GHD in April 2013. Of the other two, the Bush Stone-curlew is likely to occur within the Project Area, and was recorded relatively recently in the LRM database (2001). The Yellow-rumped Mannikin is restricted to more northerly parts of the NT, and is unlikely to occur in the Project Area as anything more than a vagrant.

Both reptiles (Woma Python *Aspidites ramsayi* and King Brown Snake *Pseudechis australis*) were detected during the baseline fauna survey by GHD in April 2013, and are likely to be widespread but sparse across the region.

The two frogs (Ornate Burrowing Frog *Platyplectrum ornatus* and Giant Frog *Litoria australis*) are generally very common in areas where they occur. However, both species tend to be restricted to more northerly parts of the NT, although their true distribution remains uncertain. Both species are burrowing frogs, and in arid areas, they are highly seasonal in their activity, so only recorded if conditions and season are suitable. Neither species was recorded during the baseline fauna survey by GHD in April 2013. The Giant Frog may occur within the Project Area, but the Ornate Burrowing Frog is likely to be replaced in this part of the NT by a closely-related species, Spencer's Burrowing Frog (*Platyplectrum spenceri*).

Table 6 TPWC Act-listed Threatened Fauna species identified for the Mount Peake Project Area (mine area and transport corridors)

Common Name	Scientific Name	EPBC status	NT status (TPWC)	Source	Most recent (LRM data)
Mammals					
Brush-tailed Mulgara	*Dasycercus blythi*	VU	VU	NT LRM Database	See Table 3
Crest-tailed mulgara	*Dasycercus cristicauda*	VU	VU	PMST / GHD	See Table 3
Kowari	*Dasyuroides byrnei*	VU	RX	NT LRM Database	See Table 3
Western Quoll	*Dasyurus geoffroii*	VU	RX	NT LRM Database	See Table 3
Red-tailed Phascogale	*Phascogale calura*	EN	RX	NT LRM Database	See Table 3
* Kultarr	*Antechinomys laniger*		NT	NT LRM Database	2001
Golden Bandicoot	*Isoodon auratus*	VU	EN	NT LRM Database	See Table 3
Bilby	*Macrotis lagotis*	VU	VU	PMST / NT LRM Database / GHD	See Table 3
* Common Brushtail Possum (Southern N.T.)	*Trichosurus vulpecula vulpecula*		EN	NT LRM Database	1969
* Spectacled Hare-wallaby	*Lagorchestes conspicillatus*		NT	NT LRM Database	1995
Mala	*Lagorchestes hirsutus*	EN	EW	NT LRM Database	See Table 3
* Northern Nailtail Wallaby	*Onychogalea unguifera*		NT	NT LRM Database	1969
Black-footed Rock-wallaby	*Petrogale lateralis*	VU	NT	PMST / NT LRM Database	See Table 3
Southern Marsupial Mole	*Notoryctes typhlops*	EN	VU	PMST / NT LRM Database	See Table 3

Common Name	Scientific Name	EPBC status	NT status (TPWC)	Source	Most recent (LRM data)
Birds					
* Emu	*Dromaius novaehollandiae*		NT	NT LRM Database / GHD	2006 (2013 GHD)
Malleefowl	*Leipoa ocellata*	VU	CR	NT LRM Database	See Table 3
Red Goshawk	*Erythrotriorchis radiatus*	VU	VU	PMST	See Table 3
* Grey Falcon	*Falco hypoleucos*		VU	NT LRM Database / GHD	1967 (2013 GHD)
* Australian Bustard	*Ardeotis australis*		NT	NT LRM Database / GHD	2001 (2013 GHD)
* Bush Stone-curlew	*Burhinus grallarius*		NT	NT LRM Database	2001
Australian Painted Snipe	*Rostratula australis*	EN	VU	PMST	See Table 3
Princess Parrot	*Polytelis alexandrae*	VU	VU	PMST	See Table 3
Night Parrot	*Pezoporus occidentalis*	EN	CR	NT LRM Database	See Table 3
* Yellow-rumped Mannikin	*Lonchura flaviprymna*		NT	NT LRM Database	1901
Reptiles					
Great Desert Skink	*Liopholis kintorei*	VU	VU	PMST	See Table 3
* Woma Python	*Aspidites ramsayi*		NT	NT LRM Database / GHD	2009 (2013 GHD)
* King Brown Snake	*Pseudechis australis*		NT	NT LRM Database / GHD	1986 (2013 GHD)
Amphibians					
* Ornate Burrowing Frog	*Platyplectrum ornatus*		DD	NT LRM Database	1978
* Giant Frog	*Litoria australis*		DD	NT LRM Database	2009

VU = Vulnerable; EN = Endangered; CR = Critically Endangered; EW = Extinct in the wild; RX = Regionally Extinct; NT = Near Threatened; DD = Data Deficient; TPWC = Territory Parks and Wildlife Conservation Act 2006.

* - Species not considered under EPBC Act [Section 3.1(d)]

3.3 (b) Hydrology, including water flows

Surface Water

Mount Peake Project Area

The Mount Peake Project Area lies within the Wiso Catchment. Regional climate results in a number of ephemeral drainage lines with three major surface water features being:

- Bloodwood Creek to the north;
- Murray Creek to the east; and
- Hanson River to the east into which regional drainage channels typically discharge.

The ephemeral Mud Hut Swamp is located within the footprint of exploration lease EL 29578, approximately 7.7 km to the north of the proposed mine pit and is considered to be a downstream receptor of Bloodwood Creek.

No water quality information is available for the watercourses in the area.

East Arm Wharf

The topography of the Darwin Harbour region ranges from flat intertidal and estuarine (marine) plains of negligible slope, through to undulating hills and plateaus. Elevation ranges from sea level at the coastal margins to around 140 m in the southern foothills.

East Arm was originally designed and constructed for surface water to run-off directly to the ocean. However, surface water is now managed through a series of stormwater drains and collection pits that discharge to a collection pond.

The wharf area of East Arm is subject to storm surge during cyclonic conditions with maps indicating that the site is within the “Primary Storm Surge Zone” could be inundated for a storm tide event of 100 year Average Recurrence Intervals (ARI).

The same mapping shows that the proposed footprint for the bulk storage area sits partly within the Primary Storm Surge Zone.

Groundwater

Mount Peake Project Area

The Project mining area is located within the Arunta Geological region and is underlain by fractured and weathered rock aquifers. The fractured rock aquifer system is considered to be semi-confined. Fractured and weathered rock aquifer generally provides variable groundwater yields ranging from 0.05 to 2.5 litres per second (L/s).

Palaeovalleys in-filled with Tertiary and Quaternary sediments are located close to the mount Peake Project Area (around 35 km north northeast). The identified palaeovalley aligns the Hanson River in a north south orientation, with the palaeovalley beginning at the intersection of the Mount Peake Creek and the Hanson River. The palaeovalley is approximately 10 km (east to west) at its widest and extends approximately 50 km to the north. Bore search data identified that yields of approximately 1.5 L/s can be expected from palaeochannel aquifers, and all bores installed into the aquifer have been used for stock watering purposes.

Standing water level data indicates that groundwater within the fractured rock aquifer in the mining area generally ranges from 20 to 25 mbgl. Groundwater bores that are likely installed within the palaeovalley aquifer indicate depths to groundwater ranging from 10 to 15 mbgl.

It is considered that groundwater flow is to the north-east, consistent with local topographic relief and groundwater recharge and discharge is likely to be seasonal, with enhanced recharge in the wet season, and enhanced discharge in the dry season when receiving ephemeral watercourses are dry.

Elevated fluoride concentrations in a number of wells within the mining area and the palaeovalley aquifer exceed the Australian Drinking Water Guideline (ADWG) of 1.5 mg/L. Elevated fluoride concentrations are typically derived from granitic rocks in the Arunta block.

Additionally, nitrate and sulphate were reported at concentrations exceeding the ADWG guidelines (50 and 500 mg/L respectively).

Existing uses of the groundwater within, and surrounding, the mine area is generally stock watering (total dissolved solids (TDS) ranging from 0 to 13,000 mg/L) and industrial purposes (TDS ranging from >13,000 mg/L).

In general, groundwater would need to be treated prior to potable use.

East Arm Wharf

Groundwater in the Darwin Harbour region generally occurs in shallow, unconfined aquifers. The aquifers discharge and drain throughout the dry season, and are recharged during the wet season by direct infiltration and rainfall. Standing water levels can range from near surface to up to 10 m below ground level.

Groundwater can be encountered within the Quaternary and Proterozoic lithologies, which are shallow. Aquifers are low yielding, with flows less than 0.5 L/s. Higher yields with low storage may be available from sand lenses with Quaternary sediments and fractures in sandstone.

Groundwater quality is typically saline to hyper saline and not suitable for drinking or irrigation unless treated. The high salinity is due to the proximity to landward salt water intrusion and dissolution of salts derived from marine sediments.

3.3 (c) Soil and Vegetation characteristics

Mount Peake Project Area

The Mount Peake Project Area lies within outliers of Neoproterozoic sediments of the Georgina Basin, which rest on metasediments of granites of the Aileron Province within the Lower Proterozoic Arunta Region.

The Mount Peake orebody is located in a magnetite bearing gabbro occurring at a shallow depth of around 40 m, striking along a 1.3 km length, 500 m wide and 80 to 100 m thick.

Soils within the proposed mining area consist of shallow sands and massive earths.

The Mount Peake Project Area lies within the Burt Plain bioregion (DSEWPaC 2013). The following key vegetation communities were identified as potentially present within the Mount Peake Project Area following a review of desktop information and aerial imagery:

- Bloodwood *Corymbia terminalis* low open woodland over spinifex *Triodia pungens* hummock grassland understorey on sand plains;
- Dead Finish *Acacia tetragonaphylla* open shrubland on gravelly plains and low hills;
- River Red Gum *Eucalyptus camaldulensis* open woodland fringing major water courses;
- Mulga woodland *Acacia aneura* open woodland on loamy sand plains; and
- Coolibah *Eucalyptus victrix* woodland and wooded swamp.

East Arm Wharf

East Arm Wharf was constructed through land reclamation with fill obtained from the surrounding area. Two land systems of the Quarantine Island area and East Arm Peninsula, the Bustard system and the Littoral system, were amalgamated through land reclamation to create the East Arm Wharf area.

Acid sulfate soils (ASS) exist in coastal areas of the Darwin Harbour below 5 mAHD, and risk mapping indicated that soils in this East Arm Wharf area have a high probability of generating acid when exposed to oxygen through activities such as excavation.

Regional geology shows that the East Arm peninsula is underlain by Quaternary intertidal marine alluvium consisting of clay and mud, and colluvial sediments deposited by un-concentrated surface runoff consisting of sand, silt and clay. Unconsolidated and concretionary lateritic soils of Cainozoic age have been mapped in the area. Early Proterozoic metamorphic Burrell Creek Formation form isolated outcrops on the East Arm peninsula.

Surface marine sediments of near-shore areas contain chromium and mercury concentrations above screening levels, but not above maximum guideline levels. Petroleum hydrocarbons recorded in East Arm are below screening levels, and are likely to be as a result of historical industrial and port operations.

The East Arm Wharf area has been historically cleared or reclaimed to form the existing wharf, cargo storage, stockpile and administration building areas. Consequently, the area supports no established vegetation communities or habitat for threatened flora. This species is considered highly unlikely to occur at the East Arm Wharf area.

3.3 (d) Outstanding natural features

There are no outstanding natural features near to the Mount Peake Project Area or East Arm Wharf that would be impacted by the proposed development.

3.3 (e) Remnant native vegetation

Remnant native vegetation was present across the vast majority of the Mount Peake Project Area, with historical clearing typically confined to pastoral infrastructure sites. High to moderate level impacts from pastoral activities (trampling, grazing and weed invasion) were localised and generally confined to watering points, ephemeral watercourses and wetlands and stockyards. Low level grazing impacts were evident across much of the Project Area, however, vegetation was generally healthy and active seedling recruitment was evident. Some modification to vegetation structure from fires has occurred within the Project area.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The Mount Peake Project Area is relatively flat with little change in elevation from west to east. The mine site is located at approximately 485 mAHD. The proposed transport and infrastructure corridors traverse a low saddle east of the Mine Site at an elevation of approximately 520 mAHD. The remainder of the proposed infrastructure corridor traverses land that is prone to inundation (primarily from the Hanson River and its tributaries) at an elevation of approximately 480 mAHD raising to just over 500 mAHD in the east adjacent to the proposed Adnera Load-out Facility. The proposed transport corridor has been located to maximise higher ground to the south east of the mine site, roughly following the 500 mAHD contour until it crosses Stuart Highway on-route to the proposed Adnera Load-out Facility. This alignment will provide flood immunity to the transport corridor.

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.

Weeds

One declared weed under the *Weeds Management Act 2001* was recorded during the GHD field survey, namely *Tribulus terrestris.*

Feral animals

Twelve non-native fauna species are identified for the Mount Peake Project Area (Table 7). Ten of these are mammals, one is a bird and one is a reptile.

The Rock Dove and the Asian House Gecko tend to occur in locations that have human development (houses, buildings, etc). These species are unlikely to impact on the natural environment in the Mount Peake Project Area. In contrast, all of the mammals are known to invade natural environments, and are generally considered to be responsible for major impacts on Australia's natural environment. Of the ten mammals identified, seven have been recorded previously on the LRM database, and four of those (Cat, European Rabbit, Donkey and Cattle) were detected during the baseline survey by GHD in April 2013. Cattle are present as an agricultural asset, but all others are present as feral animals.

Despite the diversity and confirmed presence of non-native fauna (particularly mammals), the Project Area does not appear to be unusually or excessively overrun by feral animals, compared with other parts of the NT or Australia. That said, the non-native fauna that occurs at the site is likely to have had, and to continue to have, an adverse impact on the area's ecology.

Table 7 Non-native fauna species identified for the Mount Peake Project Area (mine area and transport corridors)

Common name	Scientific name	LRM	GHD	PMST
Mammals				
Cat	*Felis catus*	X	X	X
European Rabbit	*Oryctolagus cuniculus*	X	X	
Donkey	*Equus asinus*	X	X	
Dog (domestic)	*Canis lupus familiaris*			X
House Mouse	*Mus musculus*	X		X
Red Fox	*Vulpes vulpes*			X
Horse	*Equus caballus*	X		
Pig	*Sus scrofa*	X		
Cattle	*Bos taurus*	X	X	X
Camel	*Camelus dromedarius*			X
Birds				
Rock Dove	*Columba livia*	X		X
Reptiles				
Asian House Gecko	*Hemidactylus frenatus*	X		X

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

The PMST report identified no Commonwealth Heritage Places within or near the Mount Peake Project Area.

The PMST report identified the presence of 12 Commonwealth Heritage Places within 10 km of East Arm Wharf. These are predominantly buildings and precincts associated with Larrakeyah Barracks, HMAS Coonawarra and RAAF Base or structures such as a former incinerator, water tower and two houses. All developments at East Arm Wharf will be on existing reclaimed land with management practices in place to control any emissions (e.g. dust) to acceptable standards. No Commonwealth Heritage Place will be directly or indirectly impacted by the proposal.

3.3 (i) Indigenous heritage values

TNG has worked with the Central Land Council and traditional owners to obtain Sacred Site Clearance Certificates for exploration activities at the Mount Peake Project Area. This work has identified areas of cultural significance which have been taken into account in siting Project infrastructure. Further site surveys will be undertaken to support Project approvals.

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).

Mount Peake Project Area

The ephemeral Mud Hut Swamp is located within the footprint of exploration lease EL 29578, approximately 7.7 km to the north of the proposed mine pit and is considered to be a downstream receptor of Bloodwood Creek. Mud Hut Swamp is not included within a formal network of protected areas, however it has been identified as a Site of Conservation Significance and is listed in the 'Inventory of sites of international and national significance for biodiversity values in the Northern Territory'.

The Anmatyerr North site, which includes the Stirling Swamp to the south of the Wilora community and the adjacent Hanson River, has also been identified as a Site of Conservation Significance and is listed in the 'Inventory of sites of international and national significance for biodiversity values in the Northern Territory'. It is not formally protected. This site is crossed by the proposed Project corridors.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

Mount Peake Project Area

The Mount Peake Project Area is primarily located on the Stirling pastoral station with a small component of the transport corridor located on Anningie pastoral station.

East Arm Wharf

East Arm Wharf is owned by the Darwin Port Corporation.

3.3 (l) Existing land / marine uses of area

Mount Peake Project Area

The primary land use in the Mount Peake Project Area is cattle grazing.

East Arm Wharf

East Arm Wharf provides facilities to serve a number of shipping and cargo markets and the handling of product including manganese and iron ore.

3.3 (m) Any proposed land / marine uses of area

There are no other proposed land uses for the Mount Peake and East Arm Wharf project areas.

4 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities for the proposed action at Section 2.3 you will need to 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 any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:

- what the measure is,
- how the measure is expected to be effective, and
- the time frame or workplan for the measure.

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.

Provide information about the level of commitment by the person proposing to take the action to implement the proposed mitigation measures. For example, 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), you should state that, that is the case.

Note, the Australian Government Environment 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 (eg 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.

More general commitments (eg preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making the initial decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act. (But those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, if your proposal proceeds to these stages).

Mount Peake Mining Area

TNG is currently preparing a Definitive Feasibility Study for the Project, a component of which will be to optimise the design and location of infrastructure. Initial surveys indicate that the potential to impact MNES (two threatened flora and four threatened fauna) is confined to the transport and infrastructure corridors. These study corridors have been initially established with widths of 2 km and 1 km respectively. Ultimately the disturbance area will be in the order of 35 m and 15 m respectively.

The key measure to be used to avoid and minimise impacts is in the siting of the transport route and infrastructure alignment within these corridors so as to avoid environmentally sensitive areas that have the potential to provide habitat for MNES.

From a construction and operational perspective:

- vegetation clearing will be kept to the minimum required to allow construction and safe operations;
- weed management will occur through development and implementation of a weed management plan;
- if necessary, further targeted surveys of significant flora and fauna species will be undertaken to confirm the final alignment of corridors;
- where necessary, management measures will be developed to minimise impacts to MNES where impacts cannot be avoided; and
- disturbed areas will be rehabilitated progressively.

East Arm Wharf

The Project is not expected to have any significant impact to MNES at East Arm Wharf. Nonetheless, a suite of management measures will be developed to minimise dust and noise emissions in line with the standards and procedures outlined in Darwin Port Corporations East Arm Wharf EMP. TNG or any third party acting on TNG's behalf will be required to demonstrate conformance with the Management Plan.

A surface water management plan will ensure impacts to marine water quality will be managed in line with Darwin Port Corporations East Arm Wharf EMP.

The Migratory Bird Management Plan (MBMP) as required by DSEWPaC in approving the East Arm Wharf Expansion is recognised by TNG and migratory bird habitat management at the East Arm Wharf Project Area is expected to be managed in line with this document.

5 Conclusion on the likelihood of significant impacts

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

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

	No, complete section 5.2
X	Yes, complete section 5.3

5.2 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.

5.3 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 impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
X	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.

Initial surveys of the Mount Peake Project Area indicate that the potential to impact MNES is confined to the transport and infrastructure corridors. Whilst work is progressing to optimise the transport route and infrastructure alignments within these study corridors, there is uncertainty around the occurrence and distribution of MNES within the proposed area of disturbance. Applying the precautionary principle, the proposed action is a controlled action due to the potential for significant impacts to:

- Dwarf Desert Spike-rush *Eleocharis papillosa*;
- Giant Sweet Potato *Ipomoea polpha subsp. latzii*;
- Bilby *Macrotis lagotis*;
- Crest-tailed Mulgara *Dasycercus cristicauda*;
- Black-footed Rock-wallaby *Petrogale lateralis*; and
- Southern Marsupial Mole *Notoryctes typhlops*.

6 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

		Yes	No
6.1	Does the party taking the action have a satisfactory record of responsible environmental management?	X	
	Provide details		
6.2	Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?		X
	If yes, provide details		
6.3	If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?	X	
	If yes, provide details of environmental policy and planning framework TNG has in place an Environmental Policy which applies to activities undertaken by the Company and its employees, including contractors. The policy commits to minimising the impact of all aspects of operations on the environment to a statutory and socially acceptable level through the pro-active implementation, maintenance and continuous improvement of the Company's Environmental Management Plan. To date an Environmental Management Plan (EMP) has been developed covering activities associated with exploration activities. Studies are continuing to optimise aspects of the Project and a component of this process is to "engineer out" environmental and social impacts wherever possible. To support operational activities an Operations EMP will be developed which will embody the commitments made by TNG in the process of gaining Project approval and any requirements applied to the Project by regulatory authorities as a condition of approval. The Operations EMP will be regularly reviewed and updated consistent with TNG's Environmental Management System.		
6.4	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?		X
	Provide name of proposal and EPBC reference number (if known)		

7 Information sources and attachments

(For the information provided above)

7.1 References

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

DEWHA (2009) 'Matters of National Environmental Significance, Significant Impact Guidelines 1.1, *Environment Protection and Biodiversity Conservation Act 1999*', Department of Environment, Water, Heritage and the Arts, Federal Government of Australia, Canberra.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) Threatened Species Scientific Committee (2010) Advice from the Threatened Species Scientific Committee on the list of Threatened Species under the EPBC Act for *Eleocharis papillosa*. Accessed at: http://environment.gov.au/biodiversity/threatened/species/pubs on 1/10/2013.

DSEWPaC 2013, IBRA7 (Interim Biogeographic Regionalisation for Australia) dataset accessed from http://www.environment.gov.au/parks/nrs/science/bioregion-framework/ibra/ in June 2013.

NT Land Resource Management (LRM) flora and fauna database (Lat: -21.41213 to -22.13333; Long: 133.03458 to 134.12140).

PMST – Protected Matters Search Tool for matters listed under the EPBC Act. Available at: http://www.environment.gov.au/epbc/pmst/index.html.

7.2 Reliability and date of information

For information in section 3 specify:

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

7.3 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 project locality (section 1)	✓	Figures 1 to 6
	GIS file delineating the boundary of the referral area (section 1)	✓	Appendix A –and attached GIS file
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figures 7 and 8
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		N/A
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		N/A
	copies of any flora and fauna investigations and surveys (section 3)		Not currently written up
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		N/A
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		N/A

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, 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[1].

Project title: Mount Peake Project

8.1 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.

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

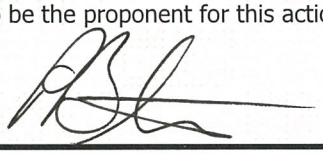
- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act[2], 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.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action[3].

Name	Paul Burton
Title	Managing Director
Organisation	TNG Ltd
ACN / ABN (if applicable)	12 000 817 023
Postal address	PO Box 1126, Subiaco, WA 6904
Telephone	+61 8 9327 0900
Email	peb@tngltd.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. I agree to be the proponent for this action.
Signature	 Date 14/10/13

[1] *If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

[2] *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.*

[3] *If a person other than the person proposing to take action is to be nominated as the proponent, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

8.2 Person preparing the referral information (if different from 8.1)

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

Name	Ian McCardle
Title	Principal Environmental Scientist
Organisation	GHD Pty Ltd
ACN / ABN (if applicable)	39 008 488 373
Postal address	PO Box 3106, Adelaide Terrace, Perth, WA 6832
Telephone	+61 8 6222 8995
Email	ian.mccardle@ghd.com
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 14·10·13

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?
- ✓ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ✓ Provided a digital file (preferably ArcGIS shapefile) 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)?

Appendix A Location Coordinates

Appendix A Location Coordinates