REPORT TO THE
MINISTER FOR ENVIRONMENT

APPEALS IN OBJECTION TO THE CONTENT OF, AND RECOMMENDATIONS
IN, ENVIRONMENTAL PROTECTION AUTHORITY REPORT 1606 AND
CONDITIONS OF WORKS APPROVAL W6072/2017/1 ISSUED BY THE
DEPARTMENT OF WATER AND ENVIRONMENTAL REGULATION

THUNDERBIRD MINERAL SANDS PROJECT,
DAMPIER PENINSULA, SHIRE OF BROOME AND
SHIRE OF DERBY–WEST KIMBERLEY

PROPOSENT: SHEFFIELD RESOURCES LIMITED

Appeal Numbers 024.001-003 of 2017 and
025.001-006 of 2017

April 2018
Appeals Summary

This report relates to six appeals lodged in objection to the contents of, and recommendations in, the Environmental Protection Authority (EPA) Report 1606, and three appeals in objection to the conditions of works approval W6072/2017/1 issued by the Department of Water and Environmental Regulation (DWER), for the Thunderbird Mineral Sands Project located on the Dampier Peninsula, approximately 95 kilometres (km) north east of Broome and 75 km west of Derby.

Appellants raised a number of concerns relating to potential environmental impacts to fauna; flora and vegetation; Aboriginal heritage; hydrological processes and inland waters environmental quality; greenhouse gas emissions; rehabilitation; offsets; EPA assessment process; and inadequate works approval conditions. Appellants also raised matters that are considered to be beyond the scope of the appeals which are discussed under ‘Other Matters’.

In responding to the appeals, the EPA advised that its assessment considered potential impacts to a range of environmental factors and it considered that any impacts which may arise from implementation of the proposal are manageable and would no longer be significant, provided the proponent complies with the recommended conditions and adheres to its commitments to avoid, minimise and rehabilitate environmental impacts. However as a result of the appeals, the EPA recommended that condition 5-1 (Public Availability of Data) be amended and a requirement to report annual greenhouse gas emissions be included.

In relation to the conditions applied to the works approval, DWER remained of the view that the conditions were adequate to regulate the activities authorised through the grant of the works approval.

Having considered the information provided during the appeal, including the EPA, DWER and proponent responses to the appeals, information provided as part of the assessment of the proposal, and discussions with the appellants and the proponent during the appeal investigation, the Appeals Convenor considered that the EPA’s report and recommendations as set out in EPA Report 1606 was supported by the available evidence.

In relation to the works approval, the Appeals Convenor considered that as no clearing was authorised by the works approval, that DWER’s advice that conditions were not required in relation to the greater bilby was appropriate. The Appeals Convenor considered that the other grounds of appeal were invalid as they were not directed towards the conditions of the works approval.

Recommendations

It is recommended however, that the appeals be allowed to the extent that, consistent with the advice of the EPA, the conditions recommended in EPA Report 1606 be amended as follows:

- include a requirement that the proponent report annual greenhouse gas emissions from the proposal, such as:
  
  **Greenhouse Gas Reporting**
  
  The proponent shall publicly report the greenhouse gas emissions from the proposal on an annual basis, in a manner prescribed by the CEO.
Recommendations

- condition 5-1 is amended as set out below:

  Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), environment plans and reports relevant to the assessment of this proposal and implementation of this Statement.

The precise wording of the recommended conditions should be finalised through the consultation process under section 45 of the *Environmental Protection Act 1986* (EP Act).

It is otherwise recommended that the appeals in objection to the contents of, and recommendations in EPA Report 1606, and in objection to the conditions of works approval W6072/2017/1 issued by DWER, be dismissed.

If the Minister agrees with these recommendations, the final decision on whether or not the proposal should be implemented is to be made under section 45 of the EP Act.
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INTRODUCTION

This report relates to six appeals lodged in objection to the contents of, and recommendations in, the Environmental Protection Authority (EPA) Report 1606, and three appeals in objection to the conditions of works approval W6072/2017/1 issued by the Department of Water and Environmental Regulation (DWER), for the Thunderbird Mineral Sands Project by Sheffield Resources Limited (the proponent, works approval holder). The proposal is to construct and operate a heavy mineral sands mining operation on the Dampier Peninsula, approximately 95 kilometres (km) north east of Broome and 75 km west of Derby. The location and development envelope of the proposal are shown in Figure 1.

The appellants for the appeals in objection to the contents of, and recommendations in, EPA Report 1606 are:

- Mr J Pillsbury;
- Dr A Poelina;
- Hon R Chapple MLC;
- the Walalakoo Aboriginal Corporation;
- Environ Kimberley; and
- the Named Applicant for the Mount Jowlaenga #2 Polygon Native Title Claim (the Mount Jowlaenga people).

The appellants for the appeal against the conditions of the works approval are:

- Mr I Perdrisat;
- Dr A Poelina; and
- The Wilderness Society.

The proposal is to mine and process heavy mineral sands to create six final products. The proponent will export packaged mineral sand products via Broome Port and bulk mineral sands products via Derby Port.

The EPA set the level of assessment for the proposal at Public Environmental Review (PER) on 15 December 2015. In October 2017, the EPA released Report 1606 on its assessment of the proposal, where it concluded that the proposal is environmentally acceptable and recommended a set of conditions be imposed if the proposal is approved for implementation. It was from this report that the appeals in relation to Report 1606 were received.

DWER issued works approval W6072/2017/1 on 7 September 2017 to authorise preliminary works at the proposed mine. It was from this decision that the appeals in relation to the work approval were received.

This document is the Appeals Convenor’s formal report to the Minister for Environment under section 109(3) of the Environmental Protection Act 1986 (EP Act).
Figure 1 – Location and development envelope of the proposal

(Source: EPA Report 1606)
OVERVIEW OF APPEAL PROCESS

In accordance with section 106 of the EP Act, reports were obtained from the EPA and DWER in relation to the issues raised in the appeals. The proponent was also given the opportunity to respond to the appeals.

During the investigation of the appeals, representatives of the Office of the Appeals Convenor consulted with the appellants and the proponent on the issues raised in the appeals.

Several appellants requested a copy of the EPA’s and DWER’s reports on the appeals, and were provided with the opportunity to respond.

The environmental appeals process is a merits-based process. For appeals in relation to an EPA report and recommendations, the Appeals Convenor normally considers the environmental merits of the assessment by the EPA, based on objectives as set by the EPA as well as other environmental factors. The appeals process considers environmental significance, relevance of factors, additional information not considered by the EPA, technical errors and attainment of policy objectives. Where the development has been the subject of previous EPA assessments, those assessments and any subsequent Ministerial appeal decisions also need to be taken into account.

For appeals in relation to a works approval, appeals are against the specifications of a works approval and whether the conditions of the works approval are adequate or appropriate to control the environmental impacts of the design and construction of the plant. Issues of whether the plant operates so as to manage or abate pollution and to ensure that it operates in an environmentally acceptable manner are normally considerations of the licensing process rather than a works approval. Consistency with previous Ministerial appeal determinations is also relevant, subject to new information or evidence being presented that was not previously considered.

OUTCOMES SOUGHT BY APPELLANTS

The outcome sought by the majority of appellants objecting to EPA Report 1606 was that the Minister determine that the proposal should not be implemented. In the alternative, appellants were of the view that if the proposal is to be implemented then more stringent conditions should be applied.

In relation to appeals against the conditions of the works approval, all of the appellants asserted that the works approval should not have been granted. All appellants were of the view that the requirements of the works approval are inadequate and will not mitigate adverse environmental impacts. Only one appellant put forward recommendations with respect to the conditions which are considered below.

 Grounds of Appeal

The issues raised in the appeals related to the following:

- fauna;
- flora and vegetation;
- hydrological processes and inland waters environmental quality;
- social surroundings;
- greenhouse gas emissions;
• rehabilitation;
• offsets;
• EPA assessment process; and
• conditions of works approval W6072/2017/1.

Appellants also raised matters that are considered to be beyond the scope of the appeals which are discussed under ‘Other Matters’.

GROUND 1: FAUNA

By this ground of appeal, appellants raised concerns in relation to the following:

• greater bilby; and
• turtles.

Greater bilby

An appellant contended that the EPA was unreasonable in concluding that the greater bilby is unlikely to be significantly impacted by the proposal, and that in its assessment of the proposal the EPA did not cite information to support its conclusion.

The appellant also contended that the EPA did not adequately consider the following in relation to greater bilby:

• potential cumulative impacts;
• the Dampier Peninsula Bilby Project 2016-2019 or the Priority Threat Management for Pilbara Species of Conservation Significance (CSIRO 2014);
• significance of the local population of at least 15 individual animals; and
• potential indirect impacts from traffic and mining operations.

Consideration

Terrestrial Fauna was identified as a key environmental factor by the EPA due to loss of habitat and potential impacts to local populations of threatened fauna species, particularly the greater bilby.

The EPA’s environmental objective for Terrestrial Fauna is ‘to protect terrestrial fauna so that biological diversity and ecological integrity are maintained’.

Report 1606 states that direct impacts from mining activities and loss of habitat are the main threats to greater bilby. The proposal involves the direct disturbance of 1,961.1 ha of native vegetation at the mine site, currently used as pastoral land. A mining area of up to 1,635 ha will be progressively cleared, mined and rehabilitated. Report 1606 states that if rehabilitation successfully returns suitable foraging and breeding habitat for the greater bilby within an appropriate timeframe, then impacts to the mined area could be considered temporary. The aim is to return the land to pre-mining condition with soil density profiles that are suitable for greater bilby burrows.

The proposal includes up to 326.1 ha of semi-permanent infrastructure and development. Report 1606 states that even though this will be decommissioned and rehabilitated post-mining, the loss is effectively long-term as the mine life is in excess of 40 years. This means the 326.1 ha of greater bilby habitat within areas not proposed for progressive rehabilitation is considered a significant residual impact. The significant residual impact may increase
should the rehabilitation of the proposal fail to return greater bilby habitat to the mine voids, where progressive rehabilitation is proposed. Rehabilitation and the offset applied to this proposal are discussed further at Ground 6.

Report 1606 states that the proponent undertook fauna surveys, including a targeted survey for greater bilby, which was peer reviewed and found to be generally consistent with relevant EPA guidance.

It is noted that the EPA identified the *Environmental Factor Guideline – Terrestrial Fauna* (Terrestrial Fauna EFG) as applicable to the assessment of this factor. The EFG outlines a number of issues that may be considered during the assessment of this factor, including ‘whether surveys and analyses have been undertaken to a standard consistent with EPA technical guidance’. As noted above, the EPA has advised that the level of survey and analyses in respect to terrestrial fauna for this proposal was adequate.

In its advice on this element of the appeal, the EPA considered that the proposal would have a significant residual impact on the greater bilby at the local scale and recommended an offset to counterbalance the impact. However, the EPA considered that at a regional scale any impacts are not likely to threaten the viability of the Dampier Peninsula population, which is a separate population to those in the Pilbara.

The EPA advised that the proponent provided a draft environmental management plan (EMP) for greater bilby with the PER document, which addresses potential indirect impacts. The EPA provided feedback on the draft EMP to the proponent and the proponent is required to submit a revised plan, which incorporates amendments, to comply with the recommended conditions. The EPA noted that some of the measures contained in the draft EMP are discussed in section 6 of Report 1606 and address some of the comments raised in the appeals in regard to management of indirect impacts.

In addition, the then Department of Parks and Wildlife (Parks and Wildlife) provided advice during the PER period, that indicated that habitat availability may not be a limiting factor for the greater bilby on the Dampier Peninsula, with survey information suggesting the species has a relatively high mobility and probable low density. Parks and Wildlife also advised that the impacts of the proposal are not at a level that is likely to threaten the regional population of the greater bilby. The EPA considered this along with other information in considering that the impacts would not threaten the viability of the greater bilby at a regional scale. The EPA advised that it took all of this into account when concluding that the proposal is unlikely to have a significant impact on terrestrial fauna, including the greater bilby.

The proponent’s response to this element of the appeal mirrored that of the EPA, however, in response to the appellant’s claim that the EPA did not adequately consider relevant reports, the proponent also advised that:

> The CSIRO case study report on Priority Threat Management for Pilbara Species of Conservation Significance (CSIRO, 2014) presents a set of actions and management strategies for preservation of conservation significant species in the Pilbara region of WA. The Thunderbird Mineral Sands Project is proposed in the Kimberley region of WA, and as such the CSIRO case study report is not directly relevant.

> The Dampier Peninsula Bilby Project 2016 – 2019 has the following objective: “To monitor the occupancy and abundance of bilbies as well as key threatening processes on the Dampier Peninsula, while initiating on-ground actions to reduce the impacts from key threatening processes”. With respect to this objective, Sheffield has confirmed the presence of Greater Bilby in the vicinity of the Mine Site Development Envelope, has proposed a range of management and mitigation measures in the Preliminary Bilby

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Environmental Management Plan. A copy of the updated Plan was made available as part of the PER responses published by the EPA. This documented a number of measures which are consistent with the objectives of the Dampier Peninsula Bilby Project 2016 – 2019.

Having regard for the above and as outlined in Report 1606, the EPA considered potential impacts to Terrestrial Fauna (and specifically greater bilby) are manageable and would no longer be significant, provided there is:

- Control of the amount of clearing through the authorised extent in Schedule 1 of the recommended environmental conditions.
- Implementation of measures to manage and monitor the impacts on the greater bilby through the preparation and implementation of an EMP required by condition 6.
- Review of the success of measures taken to progressively rehabilitate disturbed areas to habitat for the greater bilby required by condition 9. Importantly, condition 9-1 requires the proponent to prepare and submit a Greater Bilby Habitat Rehabilitation Plan (GBHRP) on the advice of the Department of Biodiversity, Conservation and Attractions (DBCA), which demonstrates progressive rehabilitation for the proposal will be undertaken in a manner that results in habitat suitable for greater bilby foraging and burrowing.
- Implementation of an offset to address significant residual impacts from the long-term loss of habitat required by condition 10.
- Implementation of an additional offset should the progressive rehabilitation required by condition 9 not be successful, applied through condition 11.

The EPA noted in Report 1606 that there are other relevant statutory requirements for:

- licensing of the take of fauna by DBCA through the *Wildlife Conservation Act 1950*; and
- management of mine closure and rehabilitation by the Department of Mines, Industry Regulation and Safety (DMIRS) through the *Mining Act 1978* (Mining Act).

The EPA considered that these are the most appropriate regulatory mechanisms to manage any potential impacts resulting from the relevant activities.

**Conclusion**

Noting the above, it is considered that the EPA in its assessment has had regard to the potential risks to the local and regional population of greater bilby, and has recommended control of clearing through the authorised extent outlined in Schedule 1 of the recommended conditions and conditions 6, 9 , 10 and 11, to manage uncertainty and mitigate potential risks and impacts to this species. It is also considered that the EPA has had regard for the issues raised under this ground of appeal, and that the appeal has not raised any new issues or identified any new risks which were not considered by the EPA during the assessment. It is therefore recommended that this ground of appeal be dismissed.

**Turtles**

By this element of the appeal, two appellants submitted that assurances were made by the EPA during consultation on the proposal that protocols are in place to protect marine turtle nesting habitat on beaches such as Point Torment, in the vicinity of the proposed sea transfer site where ships will be loaded in King Sound at Derby. The appellants were concerned that Report 1606 makes no mention of such protocols, and that conditions should be required to ensure there is no impact to the marine turtle rookery beaches on Point
Torment or surrounding areas as a result of incoming and outgoing ships, loading of ships or other activities.

It was submitted that the EPA implemented strict turtle nesting protocols for the Gorgon Gas Project on Barrow Island.

During meetings with representatives of the Office of the Appeals Convenor to discuss their appeals, the appellants further explained their concerns, noting that the sea transfer site is parallel to Point Torment and that the proposal presents significant risks to marine turtles from the following:

- potential spillage of mineral sands during transhipment and loading, which will remain suspended in the water column and deposit in mangroves onshore, impacting the beaches where turtles nest;
- impacts from noise pollution, propeller wash and potential propeller strike; and
- light pollution from ships, barges and infrastructure during night loading activities, which can interfere with turtles’ and hatchlings’ sense of navigation; and
- research in the Pilbara marine environment has shown that night light can attract fish, leading to an increase in local seagull numbers who return to shore during daylight to potentially predate on turtle hatchlings.

It was contended that the implementation conditions for the proposal should require an environmental management plan to mitigate potential impacts to marine environmental water quality and marine turtles.

**Consideration**

In response to this element of the appeal, the EPA advised that it considered marine fauna was not a key environmental factor for this proposal for the following reasons, which are outlined in Appendix 4 of Report 1606:

- the relatively small number of vessel movements;
- the limited scale of activities and impacts on the marine environment;
- the general absence of significant marine fauna habitat types;
- *Environmental Factor Guideline – Marine Fauna*;
- and
- the significance considerations in the *Statement of Environmental Principles, Factors and Objectives*.

The EPA concluded that it is unlikely that the proposal would have a significant impact on marine fauna and that the impacts to this factor are manageable.

The EPA also advised that it took into account that there are no activities taking place on land at Point Torment, and it formed the view there would be no impact to the turtle rookery at that location.

In relation to comparison with the Gorgon Gas Project, the EPA did not consider it a comparable situation as activities for the Thunderbird Project will occur offshore away from Point Torment whereas the Gorgon Gas Project (EPA Report 1323) involved construction of infrastructure on the shore crossing, which directly impacted a turtle rookery.

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The EPA also noted that under its guidelines and procedures framework, it has published a number of documents under ‘Other Advice’ that contain advice and guidance on particular environmental matters, including *Environmental Assessment Guideline for Protecting Marine Turtles from Light Impacts* which provides guidance on best practice for protecting turtles.

In its response to this element of the appeal, the proponent advised that the Commonwealth’s *Draft Recovery Plan for Marine Turtles in Australian Waters Commonwealth of Australia* (2017) records the coastline around King Sound and the Kimberley as being sites of nesting for flatback turtles. The genetic stock of flatback turtles in this area is likely to be part of the south-west Kimberley stock, and the main nesting sites are thought to be Eighty Mile Beach, Eco Beach and the Lacepede Islands and the areas within a 60 mile radius. The proponent submitted that Point Torment is more than 200 km from the Lacepede Islands and therefore outside of the most important nesting areas for flatback turtles. The proponent advised that the proposal’s sea transfer point will be 17.3 nautical miles offshore from Point Torment and confirmed that no activities on land will occur at Point Torment.

The proponent advised that the presence of flatback turtles at Point Torment was clarified with Dr Robert Prince from the former Parks and Wildlife, who stated that investigations in 2014 revealed only small numbers of flatback turtles nesting at Point Torment which is not considered to be a major rookery.

It is noted that Marine Environmental Quality was identified as a key environmental factor by the EPA due to potential impacts on water quality, sediment and biota from the operation of port facilities. The EPA’s environmental objective for this factor is ‘To maintain the quality of water, sediment and biota so that environmental values are protected’.

*Report 1606* noted advice from DWER that all emissions and discharges associated with construction and operation of the mineral sands mining and processing facilities, product storage and ship loading at the Port of Derby (among other things), can be managed under Part V of the EP Act.

The PER document\(^5\) indicates that proposed transhipment of bulk mineral sands product will be via barges from Derby Port to ships anchored at an existing sea transfer point at Point Torment.

In relation to concerns around spillage causing marine pollution, the proponent’s Preliminary Port Environmental Management Plan\(^6\) provided with the PER, indicates that transfer of product to loading barges will be via a covered conveyor to minimise escape of dust or spillage at Derby Port. During the appeal investigation, the EPA advised that any spillage of mineral sands during transhipment of barges and loading activities from barge to ship at the sea transfer site would not be significant. Nor would spilt product significantly impact the marine environment given the dilution effect of ocean currents from high tidal movements and the benign nature of the bulk product.

In relation to concerns around light spill impacting marine turtles, the proponent’s Response to Public Submissions\(^7\) states that no additional lighting will be needed at Derby Port. It was also noted that the sea transfer site is 17.3 nautical miles offshore from Point Torment and

\(^7\) Sheffield Resources Limited, Response to Summary of Public Submissions, May 2017, p9.
that on board ship lights are not known to be a significant disruptor to turtle breeding activity. Given this, the proponent was of the view that light pollution from ships is not considered a significant risk to the low numbers of turtles nesting at Point Torment.

**Conclusion**

Noting the above, it is considered that the EPA had regard to the potential impacts to marine environmental water quality and marine turtles, including the impacts from product spillage during ship loading, light spill and vessel strike, in its assessment of the proposal in respect to the environmental factors Marine Environmental Quality and Marine Fauna. It is therefore recommended that this ground of appeal be dismissed.

**GROUND 2: FLORA AND VEGETATION**

By this ground of appeal, appellants raised concerns in relation to the following:

- failure to identify potential groundwater dependant ecosystems (GDEs) through investigation of the underlying hydrology and baseline vegetation monitoring, inadequate assessment and mitigation of potential impacts to GDEs, and inadequate conditions in relation to groundwater drawdown; and
- potential impacts of dust on the ecosystem.

**Consideration**

In relation to concerns about potential GDEs, the EPA advised that it considered both Flora and Vegetation and Hydrological Processes as key environmental factors during the assessment. The EPA considered that it had sufficient information to assess the impacts on potential GDEs and while further monitoring may have confirmed their status, the small scale of the predicted drawdown in groundwater levels was such that if any GDE was present then it would not be significantly impacted.

The EPA also advised that given the scale of groundwater drawdown was seen as important in preventing significant impacts, the EPA recommended a condition that restricts the area of drawdown so impacts are not greater than that predicted for the proposal. The EPA submitted that similar conditions have been successfully implemented for other projects; e.g. Roy Hill (Ministerial Statement 829).

In this regard, condition 8-1 (Groundwater drawdown restrictions) requires that ‘The proponent shall ensure that groundwater drawdown associated with the proposal does not result in the spatial extent of the drawdown exceeding the two metre groundwater drawdown contour defined in Figure 5 of Schedule 1 and delineated by the coordinates in Schedule 2.’

Report 1606 states that two areas were initially identified as potential GDEs. Firstly, a nearby soak which subsequent studies indicated was unlikely to be a GDE, and secondly vegetation community W14 due to the presence of riparian *Eucalyptus camaldulensis*.

In response to this issue, the proponent advised that:

Sheffield believes sufficient baseline work has been conducted to allow assessment of impacts on the two potential GDE areas (Community W1 and W14). Given impacts on potential GDE’s are unlikely to occur until after mining below the water table commences (Year 15), there is sufficient time to collect more hydrological and vegetation information over multiple seasons to determine whether the identified potential GDEs are in fact GDEs and re-evaluate drawdown impacts on these areas. Contracts have recently been awarded for the installation of monitoring bores, including at Fraser River South which is the area of potential concern. Installation works are scheduled to be completed by the
end of November 2017. This will allow collection of data for more than 15 years prior to mining below the water table when potential impacts may commence.

In relation to dust, the PER document states that potential indirect impacts to flora and vegetation resulting from the proposal include dust generated from construction and mining activities and use of the site access road, resulting in reduced vegetation health and condition. Management measures proposed by the proponent to address dust emissions include restricting vehicles and mining equipment to designated roads, and undertaking dust suppression during construction, operation and closure of the proposal\textsuperscript{8}.

Report 1606 states that the proponent has prepared a vegetation management plan and that operations would be managed to mitigate and minimise impacts from dust (among other things).

**Conclusion**

Taking the above information into account, it is considered that the EPA had regard to the effects of groundwater drawdown on potential GDEs and impacts from dust emissions on vegetation, in its assessment of the proposal in respect to the environmental factors Hydrological Processes and Flora and Vegetation. It is also considered that the EPA's advice, that (if the proposal is implemented) the proponent's compliance with the recommended conditions and its adherence to its commitments can address the issues raised under this ground of appeal, is supported by the available information. It is therefore recommended that this ground of appeal be dismissed.

**GROUND 3: HYDROLOGICAL PROCESSES AND INLAND WATERS ENVIRONMENTAL QUALITY**

An appellant submitted that the EPA did not adequately consider or address the matters raised in its submission on the PER submitted during the public consultation period, which included a critique of the PER that was prepared by the appellant's consultant. The appellant was of the view that the EPA should have reviewed their public submission and critique of the PER, rather than relying on the proponent to do so.

The critique focused mainly on matters related to hydrological processes and inland waters environmental quality, discussed here, and also raised matters related to dust emissions, Aboriginal heritage and greenhouse gas emissions which are discussed under Grounds 2, 4 and 5 respectively.

The appellant's consultant submitted that the proposed mine is located in the headwaters of the Fraser River drainage basin which is connected to King Sound, and that the environments of both are globally significant. The appellant's consultant contended that the PER process did not adequately consider or address potential impacts resulting from the proposal to hydrological processes and inland waters environmental quality, and that the proposal presents a significant risk to the environment of the Fraser River drainage basin and King Sound.

Another appellant stated that the EPA failed to assess and recommend conditions in relation to acid sulfate soils (ASS) or to address the risk of contamination from unlined ponds. The appellant did not however, provide any information to support their claims in relation to these issues.

Consideration

In its advice on this ground of appeal, the EPA advised that it considered a number of information sources in conducting its assessment of the proposal, and not just the proponent's Response to Public Submissions.

The EPA stated that:

Under s40(6)(b) of the EP Act, the EPA may require the proponent to respond to any submissions received during the public environmental review. It is standard procedure when the EPA assesses a proposal at the Public Environmental Review level for the proponent to provide a response to the issues raised in the summary of the submissions to the satisfaction of the EPA.

As stated in section 4 of EPA Report 1606, the EPA considered the following information during its assessment:

- the proponent's referral information and PER document;
- public comments received on the referral, stakeholder comments received during the preparation of proponent documentation and public and agency comments received on the PER document;
- the proponent's response to submissions raised during the public review of the PER document;
- the EPA's own inquiries, including information gained during the site visit and associated stakeholder consultation; and
- the EPA's Statement of environmental principles, factors and objectives.

In its response, the proponent advised that it is the responsibility of the proponent to prepare and submit the response to public submissions to the satisfaction of the EPA. The proponent also advised that on 19 May 2017 it was notified in writing by the EPA that the responses to the PER submissions were considered adequate by the EPA and the Response to Public Submissions was then released publicly. The proponent further advised that during the period May to October 2017, the appellant in question was contacted several times and invited to meet to discuss the Response to Public Submissions, however the appellant did not accept.

In this regard, Report 1606 indicates that the EPA undertook its assessment of the proposal in accordance with the Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012 (Administrative Procedures 2012), and that the proponent's PER document was released for a four week public consultation period which closed 13 February 2017. The Administrative Procedures 2012 describes the procedure for a PER level of assessment, which includes the release of the proponent's approved PER document for public review and a requirement for the proponent to submit a response to public submissions that is acceptable to the EPA. As noted above, on 19 May 2017 the proponent was notified in writing by the EPA that the responses to PER submissions were considered adequate by the EPA.

In relation to the risk of downstream impacts to the Fraser River drainage basin and King Sound, it is noted that Hydrological Processes and Inland Waters Environmental Quality were identified as key environmental factors by the EPA due to potential impacts on aquifer water supplies for abstraction and groundwater and surface water flows, and potential impacts on water quality from mine closure.

The EPA’s objective for Hydrological Processes is to ‘maintain the hydrological regimes of groundwater and surface water so that environmental values are protected’, and for Inland
Waters Environmental Quality, it is ‘maintain the quality of groundwater and surface water so that environmental values are protected’.

In its response to this element of the appeal, the proponent advised that the majority of project infrastructure will be located within the headwaters of the Fraser River South catchment (refer to Figure 2).

**Figure 2 – Regional Catchment Boundaries**

Report 1606 outlines that the EPA considered potential impacts to the Hydrological Processes and Inland Waters Environmental Quality factors are manageable and would no longer be significant, provided there is:
• control of the volume of dewatering and reinjection and a requirement to backfill mine voids through the authorised extent and proposal description in Schedule 1 of the recommended environmental conditions; and

• restriction of groundwater drawdown to predominantly within the mine site development envelope required by condition 8.

The EPA also notes in Report 1606 that there is a requirement for:

• licensing of water abstraction by DWER under the Rights in Water and Irrigation Act 1914;

• licensing of emissions and discharges, including reinjection, by DWER under Part V of the EP Act; and

• management of mine closure and rehabilitation by DMIRS through the Mining Act.

The EPA considered that these are the most appropriate regulatory mechanisms to manage any potential impacts resulting from the relevant activities.

In relation to concerns around ASS, the proponent advised that assessments of mine wastes and process residues were conducted to determine the potential risk of environmental contamination from excavation, backfilling and tailings storage of process materials, as well as exposure of acid forming materials as a part of the mining process. Both the EPA and the proponent advised that geochemical characterisation demonstrated that the potential for ASS within the mine site development envelope was low.

The proponent also advised that:

Generation of potentially harmful acidic runoff through excavation or dewatering of acid sulfate soils (ASS) is therefore not considered a risk for the majority of the project materials. However, an apparent demarcation of sulfidic, Potentially Acid Forming (PAF) material was found to occur at a depth between 48.5 m (non-sulfidic) and 53.5 m (sulfidic) below the natural water table (approximately 85 m from ground surface), which will be approached in the final years of the proposed 47 year mine life.

The proponent further advised that an appropriate mining strategy and ASS management strategy, including groundwater monitoring, would be developed before any disturbance or mining at that depth.

It is also noted that the proponent undertook an assessment of the potential risk of ASS within the proposal lease area at the Derby Port, which indicated no significant risk of ASS.

In relation to the potential risk of contamination to the environment from unlined water storages, the proponent advised that the only unlined storages would be those storing groundwater which has not been in contact with ore processing or mining operations. Table 11 in the PER document lists the proposed mine site water storages, including the process water dams, wet concentrator plant dam, and the CUP thickener dam, which the proponent has advised will all be HDPE lined. Table 63 of the PER document outlines proposed management measures to protect surface and ground water, including design specifications of the proposed water storages to avoid any contamination of surface or ground water.

**Conclusion**

Noting the above, it is considered that the EPA had regard to the potential impacts to Hydrological Processes and Inland Waters Environmental Quality in its assessment of the

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9 Thunderbird Mineral Sands Project Derby Port Baseline Contamination and Acid Sulfate Soil Assessment, MBS Environmental, October 2016.
proposal, and has considered the issues raised under this ground of appeal. The EPA’s view that if the proposal is implemented, the proponent’s compliance with the recommended conditions and its adherence to its commitments can ensure that many of the impacts of the proposal in respect to Hydrological Processes and Inland Waters Environmental Quality can be managed, is supported.

It is also noted that the EPA is satisfied that the response to public submissions undertaken by the proponent met the requirements for a PER level of assessment, as outlined in the Administrative Procedures 2012 and under which the proposal was assessed.

It is therefore recommended that this ground of appeal be dismissed.

GROUND 4: SOCIAL SURROUNDINGS

By its appeal, the Walalakoo Aboriginal Corporation contended that the proponent had yet to reach agreement with Native Title holders, the Nyikina Mangala people, in relation to the Native Title approval process for granting road access to the mine. The appellant submitted that this process requires a heritage impact assessment survey, and that the recommended implementation conditions should include a requirement for the proponent to finalise consultations with the Nyikina Mangala people in respect to access to the mine through the Nyikina Mangala Consent Determination Area.

By their appeal, the Mount Jowlaenga people contended that the proponent’s consultation with them on Aboriginal heritage was inadequate and flawed, and that the information provided by the proponent during the PER process cannot be relied upon and as a result, the EPA's assessment of Social Surroundings was flawed, did not follow relevant EPA policy and guidance and its findings were unfounded.

The Mount Jowlaenga people asserted that the EPA should not have relied upon the findings of five Aboriginal heritage surveys conducted by the proponent, particularly the 2016 survey. The Mount Jowlaenga people disputed references made in Report 1606 that they supported the use of the heritage survey findings during the PER process, and contended that the surveys were conducted for specific on-ground exploration activities and cannot be relied upon to identify the location of Aboriginal heritage sites of significance within the mine site development envelope.

The Mount Jowlaenga people questioned the EPA’s statement on page 27 of Report 1606 that ‘Each survey involved representatives from various traditional owners as named in the table above’, and submitted that the report contained no such table.

The Mount Jowlaenga people were concerned that the findings of the proponent’s 2016 heritage survey were used to develop and position the Aboriginal Heritage Exclusion Zones recommended through condition 7, and denied having given their agreement to the Exclusion Zones.

The Mount Jowlaenga people submitted that their views on the above matters were put to the EPA at a meeting held in Broome in May 2017.

During the appeal investigation, the Mount Jowlaenga people provided additional information in support of their appeal, which contended that the EPA should not have relied upon the National Native Title Tribunal’s (NNTT’s) May 2017 decision on the ‘Future act determination that the act may be done’ in relation to the proposed mine. The appellant submitted that in December 2017 the Full Federal Court of Appeal set aside the NNTT’s decision, which the EPA relied upon during its assessment of proposal.
Another appellant raised general concerns about potential impacts to the Aboriginal heritage values of the area and the potential risks the proposal poses to future opportunities for nature based and cultural tourism by traditional owners.

**Consideration**

Social surroundings was identified as a key environmental factor by the EPA due to potential impacts to heritage and amenity. In relation to heritage, the EPA’s assessment considered potential impacts on Aboriginal heritage sites (loss or disturbance) and potential impacts on traditional cultural activities from temporary and/or permanent restricted access to areas.

The EPA’s environmental objective for the Social Surroundings factor is ‘to protect social surroundings from significant harm’. It is noted that the EPA identified the *Environmental Factor Guideline – Social Surroundings*\(^\text{10}\) (Social Surroundings EFG) as applicable to the assessment of this factor. The Social Surroundings EFG goes on to say that the objective recognises the importance of ensuring that social surroundings are not significantly affected as a result of implementation of a proposal or scheme. The Social Surroundings EFG provides a general guide on when the EPA may determine to assess heritage, identification of Aboriginal sites and significant cultural associations and information that may be required for environmental impact assessment. That is, the Social Surroundings EFG assists proponents and the community to establish the environmental values that will be the subject of assessment in order to ascertain the nature of those values, and the impacts, should the proposal be implemented.

It is noted that the ESD for the proposal identified heritage as one of the preliminary key environmental factors during the earlier stages of the assessment, which was then later considered under Social Surroundings. It is understood that it is the ESD that will define the form, content, timing and procedure of a specific proposal as required by section 40(3) of the EP Act. It is noted that the ESD detailed the work (including studies and investigations) that the proponent was required to carry out.

Report 1606 states that the proponent undertook five Aboriginal heritage surveys in consultation with traditional owners to identify heritage values that may be impacted. The area covered during each of the five surveys is shown in Figure 3. Report 1606 also states that the heritage surveys involved aerial (helicopter) and on-ground (driving and walking) methodologies, and each survey involved representatives from various traditional owners.

In its response to this ground of appeal, the EPA advised that the reference on page 27 of Report 1606 to a table containing the names of the various traditional owner groups who were involved in the Aboriginal heritage surveys, was a typographical error. The EPA noted however that this information is contained in Table 25 of the PER document, which indicates that the Mt Jowlaenga Polygon #2 Claim Group were one of three traditional owner groups consulted during the 2015 survey, and the sole traditional owner group consulted during the 2016 survey.

In its response to this ground of appeal, the proponent advised that the survey methodology and the selection of appropriate knowledge holders and traditional owners for all of the surveys was the responsibility of the organisations acting on behalf of traditional owners. The proponent submitted that it has conducted a survey in respect of each annual work program and has an established relationship with the traditional owners who participated in those surveys.

Figure 3 – Aboriginal heritage survey coverage

Report 1606 states that confidential ‘open’ reports were provided to the former Department of Aboriginal Affairs (DAA) and Office of the EPA after the PER document was published. Report 1606 indicates that the open reports allowed the determination of areas which
traditional owners considered were acceptable for the proponent to undertake works, areas
where works could proceed conditionally and areas where works should not occur.

The EPA advised that it considered the open reports during its assessment. The EPA
considered the 2016 survey to be most relevant as it related to mining activities. The PER
document indicates that the 2016 heritage survey included an initial survey which covered
trenching and geotechnical drilling and a second survey to determine the area available for
mining purposes. The PER document also indicates that avoidance buffers around sites of
significance were established and approved by the traditional owners during the 2016
heritage survey.

Report 1606 states that the DAA discussed the findings of the heritage surveys with the
proponent, and that the DAA confirmed that the requirements of the Aboriginal Heritage Act
1972 (AH Act) had been met. The EPA advised that the DAA’s advice had indicated that
consultation was undertaken with people with appropriate Aboriginal heritage knowledge of
the area, including during the Aboriginal heritage surveys which were undertaken. Report
1606 indicates that this is a requirement of the State Government’s Aboriginal Heritage Due
Diligence Guidelines and the ‘Bilateral Agreement relating to environmental assessment’
between the Commonwealth and State Governments.

In Report 1606, the EPA noted that the NNTT in its determination that a future act may be
done (being the granting of the mining lease) commented that it gave weight to the 2016
‘closed’ heritage report, in particular the exclusion zones, on the grounds that the knowledge
of significant areas or sites resides with the Mount Jowlaenga people. The NNTT also noted
that the 2016 survey was specific to proposed mining operations within the mining lease and
that it was satisfied that the Mount Jowlaenga people had identified areas and sites of
potential or real significance within the mining lease.

Report 1606 states that the EPA accepted that although it did not have specific information
about the types and location of sites, significant sites have been identified by the proponent
through the surveys and mining exclusion zones created to avoid heritage sites.

In its response to this element of the appeal, the proponent stated:

...Sheffield requested and the Mount Jowlaenga #2 People agreed, that a
comprehensive heritage clearance survey of the proposed mine development works and
mining operation activities would be undertaken. This survey took place over a period of
a week in 2016, with the participation of authorised representatives of the Mount
Jowlaenga #2 People. As a consequence of that survey, Sheffield agreed to a number of
exclusion zones so that the proposed mining operations could proceed.

Sheffield has also implemented an Aboriginal Heritage Management Operations
Framework (Appendix 26 of the PER) which will address Aboriginal heritage issues
which may arise as the project progresses.

In its advice, the EPA noted that EPA members met with traditional owners during a site visit
in the Kimberley and met again with traditional owners at its Perth office at a later date. The
EPA noted that it expects the proponent to undertake consultation to inform stakeholders
and try to address the issues raised where possible but it is not the EPA’s expectation that
this will result in agreement about all aspects of a proposal.

Report 1606 states the EPA was confident based on the information it had, DAA’s advice
and the NNTT determination and guidance, that it had adequate information to be able to
provide advice and make a recommendation on the proposal. As noted in Report 1606, the
Social Surroundings EFG indicates that the EP Act can in some instances complement the
AH Act. For example, in cases where actual physical protection of the environment is
required to protect sites of heritage significance.
The EPA relied on the available information, provided through the assessment to reach its conclusion in respect to this factor. The EPA considered that having regard to the relevant EP Act principles and environmental objective for Social Surroundings, the impacts to this factor are manageable and would no longer be significant in respect to Aboriginal heritage, provided there is (among other things) implementation of recommended condition 7 (Aboriginal Heritage) to ensure no disturbance is permitted in the Aboriginal Heritage Exclusion Zones (refer to Figure 4) identified in surveys and agreed to between the proponent and the Mount Jowlaenga people.

Figure 4 – Proposed Aboriginal heritage exclusion zones
In relation to the appellant’s submission that the EPA should not have relied upon the 2016 heritage survey and that its findings were flawed to the extent that they were informed by findings made by the NNNT in relation to the survey, given the decision of the Full Federal Court of Appeal in Charles, on behalf of Mount Jowlaenga Polygon #2 v Sheffield Resources Limited [2017] FCAFC 218, the following is noted. The appellant’s concerns regarding the 2016 heritage survey appear to be predominately process-based. They relate to the proponent’s use of the survey in the absence of a binding native title agreement between the proponent and the appellant.

The 2016 heritage survey was clearly relevant to the EPA’s assessment of the impact of the proposal on Aboriginal heritage. The appellant has not put forward any substantive concerns about the accuracy, reliability or completeness of the survey or the information that the EPA relied on generally in reaching its conclusions with respect to the identified heritage exclusion zones. It is understood that the decision of the Full Federal Court does not affect the findings made by the NNNT in respect of the proponent’s conduct before it applied for a future act determination or the reliability of the findings made by the NNNT (and relied upon by the EPA) in respect of the survey and Aboriginal heritage issues more generally. It is therefore considered that the information used by the EPA during its assessment of Social Surroundings was, and is, relevant.

In relation to the Walalakoo Aboriginal Corporation’s appeal, as part of the normal appeal process the appellant was contacted by the Office of the Appeals Convenor during the appeal investigation and was offered the opportunity to discuss their appeal. A representative from the Walalakoo Aboriginal Corporation advised the Office of the Appeals Convenor that they had received a draft access agreement from the proponent which would be put to the Board of the Walalakoo Aboriginal Corporation for its consideration. The representative advised that if the access agreement was endorsed by the Board then the appeal could be withdrawn. Noting this, the Office of the Appeals Convenor requested that the Walalakoo Aboriginal Corporation provide an update on the matter as soon as possible.

Prior to finalising this report to the Minister, the Office of the Appeals Convenor again made contact with the Walalakoo Aboriginal Corporation’s representative who advised that negotiations with the proponent were progressing, however, no agreement had been reached at that stage. It is noted that these negotiations between the appellant and the proponent relate to Native Title matters, which are provided for under Commonwealth legislation, and do not appear to relate to the merits of the EPA’s recommendation with respect to its objective for Social Surroundings.

**Conclusion**

Taking into account the foregoing, it is considered that the EPA relied on appropriate information during the assessment against its objective for Social Surroundings and that the conclusions it reached were supported by the available evidence. It is therefore recommended that this ground of appeal be dismissed.

**GROUND 5: GREENHOUSE GAS EMISSIONS**

An appellant contended that greenhouse gas emissions from a 35 megawatt power plant at the proposed mine were not considered by the EPA during its assessment of the proposal, and nor has any mitigation of the emissions been proposed by the proponent.
Consideration

Air quality was identified in the Environmental Scoping Document as ‘Other factors or matters’ that needed to be addressed in the PER\(^\text{11}\), including greenhouse gas emissions from the secondary processing plant and power generation plant. The PER outlines an average of 252,000 tonnes of carbon dioxide equivalent (\(\text{CO}_2\)-e) per annum for Stage II (years 6 to 47) of the proposal, at a processing rate of 15 million tonnes per annum.

Report 1606 states that compared against the State’s greenhouse gas emissions of 86.5 million tonnes of \(\text{CO}_2\)-e in 2015, the emissions from the proposal are not so significant that assessment and conditioning of greenhouse gas emissions was required.

In its advice on this ground of appeal, the EPA advised that the proponent had considered energy efficiency measures in selection and design of equipment and plant. The EPA noted that in its *Environmental Factor Guideline – Air Quality*\(^\text{12}\) (Air Quality EFG), the EPA encourages proposal design, technology and operation that ensure emissions are minimised, and that periodic review and adoption of advances in technology and process management can also reduce emission intensity over the life of a proposal.

The EPA advised, having regard to the scale of greenhouse gas emissions and the proposed management measures, the requirements of the EPA's Air Quality EFG and the *Statement of Environmental Principles, Factors and Objectives*, that it did not consider air quality to be a key environmental factor for the proposal.

The EPA also advised that the proponent will be required to report greenhouse gas emissions from the proposal in accordance with requirements of the *National Greenhouse and Energy Reporting Act 2007*.

The EPA recommended however, in the interest of transparency at a project level and a State level, that a condition be applied which requires the proponent to report annual greenhouse gas emissions from the proposal, such as:

**Greenhouse Gas Reporting**

The proponent shall publicly report the greenhouse gas emissions from the proposal on an annual basis, in a manner prescribed by the CEO.

The proponent was provided with the opportunity to respond to the EPA’s recommendation, to which the proponent advised that it had no objection to it.

**Conclusion**

Noting the above, it is considered that the EPA had regard to greenhouse gas emissions in its assessment of the proposal. Notwithstanding this, and consistent with the EPA’s advice, it is recommended that this ground of appeal be upheld to the extent that the conditions be amended to include a requirement for the proponent to report greenhouse gas emissions as recommended above by the EPA.

**GROUND 6: REHABILITATION AND OFFSETS**

An appellant contended that the EPA did not adequately assess the proposed progressive rehabilitation of mine pits. The appellant submitted the EPA expressed concerns in Report 1606 that attempts to rehabilitate mined areas and restore habitat suitable for greater bilby in the Kimberley are limited. The appellant was of the view that the EPA has been inconsistent.

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in recommending progressive rehabilitation of mine pits through condition 9 and then also recommending additional offsets be applied through condition 11 if progressive rehabilitation fails to restore greater bilby habitat.

The appellant contended that condition 11 provides a dis-incentive for the proponent to deliver successful progressive rehabilitation, and that the proponent may simply choose to pay additional offsets rather than successfully restoring mined areas. The appellant asserted that if there is a high risk of progressive rehabilitation failing to restore greater bilby habitat, then it should not be considered as a viable option and the rehabilitation component of the proposal should be reassessed by the EPA. The appellant was of the view that if progressive rehabilitation is a viable option then any mining approval should be staged and dependant on successful progressive rehabilitation of each stage before approval is given to mine subsequent stages.

The appellant also contended that the EPA's assessment of offset requirements for the significant residual impact of the proposal was incorrect. The appellant was of the view that the EPA did not correctly consider the available information when determining the offset, including the adequacy of vegetation surveys to determine the condition of the native vegetation to be cleared and whether the area is critical habitat for the survival of the greater bilby population.

The appellant submitted that the EPA did not demonstrate any consideration of indirect or cumulative impacts to greater bilby in determining the offset, and that the amount of the offset rate is inadequate. The appellant also contended that the EPA did not have regard to offset requirements set for the Main Roads Cape Leveque Road upgrade by the State and Commonwealth, when determining the offset for this proposal.

This ground of appeal raised a range of issues in relation to rehabilitation, residual impacts and offsets, which are summarised as follows:

- rehabilitation; and
- offsets.

**Consideration**

**Rehabilitation**

The EPA advised that rehabilitation and decommissioning was considered under the relevant key environmental factors during its assessment of the proposal.

The Administrative Procedures 2012, under which the proposal was assessed, sets out the requirements for a PER level of assessment, including that the proponent must demonstrate (among other things) application of the mitigation hierarchy (avoid, minimise, rehabilitate and offset impacts) in the PER document. In this regard, Report 1606 acknowledges that the proponent applied the mitigation hierarchy to reduce the environmental impacts of the proposal by identifying measures to avoid, minimise and rehabilitate impacts.

As noted in Ground 1, a mining area of up to 1,635 ha is proposed to be progressively cleared, mined and rehabilitated, with an aim of returning the land to pre-mining condition with soil density profiles that are suitable for greater bilby burrows. Schedule 1 of the recommended conditions specifies that no more than 200 ha of active mine pit will be open at any one time excluding areas being clearing in preparation of mining or areas being rehabilitated post-mining. The proposal also includes up to 326.1 ha of semi-permanent infrastructure and development, which will be decommissioned and rehabilitated at the end of the mine’s life.
Report 1606 states that the EPA received advice that the regulation of rehabilitation and closure aspects of the proposal that are located on Mining Act tenure can be managed by DMIRS under the mine closure provisions of the Mining Act.

Report 1606 further states that whilst DMIRS can manage general mine closure aspects of the proposal, the EPA considered that rehabilitation is important in reducing impacts on greater bilby habitat and therefore the EPA recommended condition 9, which requires development of a GBHRP.

As noted in Ground 1, condition 9-1 requires the proponent to prepare and submit a GBHRP on the advice of the DBCA, which demonstrates that progressive rehabilitation for the proposal will be undertaken in a manner that results in habitat suitable for greater bilby foraging and burrowing. The EPA has also recommended that implementation of an additional offset be applied through condition 11, should the progressive rehabilitation required by condition 9 not be successful.

In its response to this ground of appeal, the EPA submitted that whilst there is limited historical precedence on which to guide the potential success of progressive rehabilitation in the Kimberley, progressive rehabilitation of mineral sands mines is considered feasible in Western Australia. The EPA advised that it considered the mitigation hierarchy (avoid, minimise, rehabilitate) when recommending condition 9, and that the condition requires completion criteria to be developed by which to determine the success of the rehabilitation and if rehabilitation is not successful then the proponent is required to offset the significant residual impacts.

The EPA also noted that the proponent will need to comply with the mine closure requirements of the Mining Act, and that these requirements for rehabilitation are in addition to those that are required under the conditions recommended in Report 1606.

In response to this ground of appeal, the proponent advised that:

The Thunderbird Mineral Sands Project is the first mineral sands development north of the coastal mid-west mines centred around Eneabba. As such there is no direct experience of mineral sands rehabilitation able to be applied to the project. On this basis it is difficult to predict timeframes for returning mined and backfilled areas to its pre-existing condition, specifically return of vegetation communities to a state where they would support recolonisation by fauna, including Greater Bilbies.

Rehabilitation proposed at Thunderbird is considered significantly simpler than other mined landforms in the Kimberley rehabilitated to date given it relates to backfilled pits with similar topography to pre-existing landforms rather than constructed slopes typical of waste rock dumps and tailings storage facilities for hard rock mines. Use of topsoil that has not been stockpiled for long periods of time is anticipated to facilitate rapid vegetation establishment, particularly when mining has progressed sufficiently to allow direct replacement of overburden and topsoil. Limited experience with rehabilitation of mine sites and disturbed areas in the Kimberley’s indicates that once landforms are stabilised, vegetation establishment is relatively rapid due to high rainfall and warm temperatures during the wet season. Vegetation is anticipated to be re-established within 12 months of landform restoration having been completed. The percentage vegetative cover and species diversity of vegetation is anticipated to increase in subsequent seasons to a point where it is consistent with the pre mining condition.

The proponent noted that the additional offset required through condition 11 is for any failure to meet completion criteria in respect to re-establishing greater bilby habitat. The proponent was of the view that the potential cost of the additional offset is significant and is not viewed as a way of avoiding its responsibilities. Rather, the proponent submitted that it has committed to meeting high levels of environmental performance and understands that failure...
to successfully rehabilitate mined land will affect both its social licence to operate and environmental credibility. The proponent also noted that the Mining Act requires the rehabilitation of mined areas and penalties apply for non-compliance.

It is noted that condition 9-1 includes a provision that, the GBHRP be prepared with the advice of the DBCA, which provides additional assurance that adequate and enforceable requirements in respect to rehabilitation of greater bilby habitat will be in place prior to the commencement of rehabilitation activities.

Conclusion

Taking the above information into account, particularly that details of the GBHRP will be subject to consultation with DBCA, it is considered the issues raised by this element of the appeal have been adequately considered by the EPA. It is also noted that DMIRS has statutory arrangements under the Mining Act to ensure that mine closure is appropriately managed and regulated. On this basis, it is considered that the EPA properly assessed matters relating to rehabilitation and it is recommended that this ground of appeal be dismissed.

Offsets

As noted above, Report 1606 states that 326.1 ha of greater bilby habitat within the processing and infrastructure areas not proposed for progressive rehabilitation is considered a significant residual impact, and that this area may increase should progressive rehabilitation of mine pits fail to return greater bilby habitat.

Condition 10 outlines offset measures recommended for processing and infrastructure areas, and specifically that the amount of funding required is to be based on an initial offset rate of $2,500 (excluding GST) plus CPI per hectare.

Report 1606 states that due to a lack of historical offsets in the Kimberley on which to base calculations, the proponent based the proposed offset funding on recent offset rates applied in the Pilbara of between $1,500 to $3,000/ha. Report 1606 also indicates that the proponent stated that land acquisition was not an option due to the surrounding land consisting of long term (99 years) pastoral leases, Aboriginal Reserves or Unallocated Crown Land.

In its response to this ground of appeal, the EPA advised that it assessed offset requirements for proposal in accordance with the Western Australian Government's Environmental Offsets Policy\(^\text{13}\) (WA Environmental Offsets Policy) and Environmental Offsets Guidelines\(^\text{14}\). The WA Environmental Offsets Policy provides that offsets will be used to compensate for residual environmental impacts and be designed to achieve long-term outcomes.

The EPA submitted that it does have regard to both State and Commonwealth offsets set for other proposals, and that it makes an independent judgement on a case-by-case basis as to what is an appropriate offset. The EPA advised that, for this proposal, it considered the offset rate of $1,000/ha which was applied to the Main Roads Cape Leveque Road upgrade, but noted that project has both State and Commonwealth offsets in place whereas at this stage the Commonwealth is yet to make an assessment decision on the Thunderbird mine proposal and no offsets have yet been set. The EPA also noted that neither the State nor Commonwealth conditions for the Main Roads project are for a rate per hectare of ground disturbance of greater bilby habitat as is the case for the Thunderbird mine proposal. Given

\(^{13}\) Government of Western Australia, *WA Environmental Offsets Policy*, 2011.

this, the EPA was of the view that the two projects are not like-for-like in respect to offset requirements.

The EPA also advised that it considered the Commonwealth’s offset for GEMCO’s mining proposal on Groote Eylandt in the Northern Territory (EPBC 2014-7228), which was conditioned at $4,500/ha for ‘extra special habitat’ on a feral free island for the endangered northern quoll. The EPA submitted that in comparison, the greater bilby is listed as vulnerable under both State and Commonwealth legislation and the proposal area is not pristine habitat but pastoral land, and was therefore of the view that these two projects are not like-for-like in respect to offset requirements.

Noting the above, the EPA considered that the offset rate of $2,500/ha proposed by the proponent was reasonable. The EPA considered the Pilbara rates were commensurate with the environment of the proposal, and noted that the land is not ‘extra special habitat’ and is not critical habitat for the survival of the bilby population. The EPA also advised that a financial contribution to an offsets program based on a rate per hectare for clearing of habitat was conditioned, rather than a fixed sum, as it provides the proponent with an incentive to minimise clearing.

In relation to the condition of the native vegetation to be cleared, Report 1606 states that – taken as a whole – the series of flora and vegetation surveys and assessments undertaken by the proponent during the PER process met relevant EPA guidance and were considered adequate and sufficient to inform the EPA’s assessment. Report 1606 also states that the surveys and desktop analysis found vegetation to be in good to excellent condition despite grazing, and that no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were identified within the development envelope.

Conclusion

From the information presented in respect to this ground of appeal, it is considered that the EPA’s assessment has had regard for the significant residual impacts that may remain after the proponent’s application of the mitigation hierarchy (avoid, minimise and mitigate), and has appropriately recommended conditions to offset any significant residual impacts in accordance with relevant offset policy and guidance. It is therefore recommended that this ground of appeal be dismissed.

GROUND 7: EPA ASSESSMENT PROCESS

By this ground of appeal, appellants raised concerns in relation to the following:

- the EPA should have assessed terrestrial environmental quality as a key environmental factor, however no information was provided by the appellant to support this view;
- clarification on the proposed area of clearing, which the referral documents indicated is 1,635 ha but the proponent’s Response to Public Submissions states is 2,272.8 ha with an area of clearing for infrastructure of 639.6 ha; and
- condition 5 should include a requirement that draft plans should be publicly available for comment, and the final approved plans should also be publicly available.

Consideration

In relation to the factor Terrestrial Environmental Quality, the EPA advised that it was identified as ‘Other factors or matters’ in the Environmental Scoping Document.
The EPA’s environmental objective for Terrestrial Environmental Quality is ‘to maintain the quality of land and soils so that environmental values are protected’.

Appendix 4 of Report 1606 outlines the following reasons why the EPA did not consider Terrestrial Environmental Quality to be a key environmental factor for this proposal:

- limited potential impacts from erosion;
- management of hydrocarbons, chemicals and wastewater through licensing of discharges and emissions by DWER; and
- mine closure, including ensuring geochemical testing is undertaken, by DMIRS through provisions of the Mining Act.

The EPA concluded that it was unlikely that the proposal would have a significant impact on Terrestrial Environmental Quality and that the impacts to this factor were manageable.

Noting the above, it is considered that the EPA in its assessment has had regard to potential risks to Terrestrial Environmental Quality, and the EPA’s view that other appropriate statutory mechanisms are available to manage and regulate potential impacts to this factor is supported.

In relation to the proposed area of clearing, the EPA advised that during the assessment the proponent twice requested consent under section 43A of the EP Act to change the proposal, which the EPA consented to, published on the EPA website and outlined in Section 2.2 of Report 1606. The EPA noted that as a result of these changes the total area of clearing required for the proposal is 1,961.1 ha, which the EPA assessed as meeting its objectives. The proponent further advised that these changes resulted in the proposed area of clearing for infrastructure being reduced from 639.1 ha to the final 326.1 ha recommended in Report 1606.

In relation to concerns around condition 5, the EPA considered that environmental management plans fit under the definition of ‘all validated environmental data’, however for clarification, the EPA recommended that draft condition 5-1 be amended to read:

Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), environment plans and reports relevant to the assessment of this proposal and implementation of this Statement. [emphasis added]

The proponent was provided with the opportunity to respond to the EPA’s recommendation, to which the proponent advised that it had no objection to it.

The EPA also advised that the proponent included a number of environmental management plans as appendices to the PER document, which were available for public comment during the public review period.

**Conclusion**

Noting the above, it is considered that the EPA has had regard for the issues raised under this ground of appeal, and that the appellants have not raised any new issues or identified any new risks which were not considered by the EPA during the assessment. Notwithstanding this, and consistent with the EPA’s advice, it is recommended that this ground of appeal be upheld to the extent that condition 5-1 be amended as recommended above by the EPA. It is otherwise recommended that this ground of appeal be dismissed.
GROUND 8: CONDITIONS OF WORKS APPROVAL W6072/2017/1

An appellant raised concerns in objection to the conditions of works approval W6072/2017/1 that related to the potential risk of impacts to greater bilby, submitting that additional conditions should have been applied to the works approval.

All appellants raised matters that do not relate to the conditions of the works approval. These included concerns that the works approval for preliminary works was granted prior to completion of the EPA process, prior to the granting of a mining lease and prior to the finalisation of negotiations related to Native Title.

These appeals were made under section 102(3) of the EP Act, which provides that a person other than an applicant for a works approval who disagrees with a condition of a works approval may, within 21 days of the date the applicant was notified of the conditions of the works approval, lodge an appeal with the Minister for Environment, setting out the grounds of the appeal.

The appeal right is therefore limited to the conditions of the works approval, and not the decision to grant the works approval. As a consequence, questions about the merits or validity of the CEO’s decision to grant the works approval are considered to be beyond the scope of the investigation, and the Minister’s decision under section 109(3) of the EP Act.

These matters are discussed under ‘Other Matters’.

Background

Works Approval W6072/2017/1 is for a Category 8 premises (Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed with a production or design capacity of 5,000 tonnes or more per year), as described in Schedule 1 of the Environmental Protection Regulations 1987.

In response to the appeals, DWER advised that in June 2017 the former Department of Environment Regulation (DER) [now DWER] received a works approval and licence application for preliminary works at the proposed mine site, involving the mining and processing of 370,000 tonnes of material over an estimated 12 week period from two test pits to produce approximately 150,000 tonnes of ore for further geotechnical testing. Concurrently, the proponent also sought the EPA’s consent to undertake the ‘minor or preliminary works’ under section 41A(3) of the EP Act and the EPA provided consent in July 2017 (which is discussed further in Other Matters below).

DWER advised that the works approval application was advertised by DWER on 7 August 2017 and no submissions were received. DWER also advised that the application was referred to several direct interest public authorities, as well as the holder of the Mt Jowlaenga pastoral lease, the traditional owner representative Native Title body, and a conservation organisation, which were identified through their submissions to the PER process. A response was received from the traditional owner representative. DWER then issued the works approval on 7 September 2017.

Greater bilby

An appellant raised concerns that the works approval does not contain any conditions relating to potential impacts from the preliminary works on threatened terrestrial fauna, particularly the greater bilby. The appellant contended that the clearing of 22 ha of native vegetation for the preliminary works would result in a risk of direct and indirect impacts to the local bilby population. The appellant was of the view that recommendations by DBCA in
respect to the bilby, made during DWER’s assessment process, should have been applied to the works approval.

Consideration

In response to this ground of appeal, DWER advised that potential impacts to threatened terrestrial fauna may occur as a result of habitat loss through clearing of native vegetation for the preliminary works, however no clearing of native vegetation was authorised through the grant of works approval W6072/2017/1, and therefore conditions to limit potential impacts to fauna, including greater bilby, were not required.

It is noted that the proponent’s Mining Proposal for Minor and Preliminary Works which was approved by DMIRS on 28 September 2017, considered the requirements for a clearing permit and stated:

This Mining proposal is associated with less than 10 ha clearing per tenement (per year) and is therefore exempt from the requirement for a Native Vegetation Clearing Permit

Notwithstanding, DWER also advised that the clearing of 22 ha of native vegetation, including habitat for greater bilby, was considered in the in the EPA’s Statement of Reasons for the Consent to Undertake Minor or Preliminary Works which stated:

…Furthermore, spatial imagery of Greater Bilby sightings and locations have been provided by the proponent (Figure 2) and demonstrate that the species occurs throughout the wider locality. Noting this, it is unlikely that this species is restricted to the proposed work's disturbance area and therefore implementing the proposed works will not result in substantial habitat loss or a significant decline in the local population of the Greater Bilby.

To mitigate the potential localised impacts, the proponent proposes to undertake preclearing monitoring, installing egress ramps from the trenches, trapping and relocation activities, and restricting speed limits to minimise the risk of vehicle strikes to the species. The implementation of these management actions are considered sufficient to minimise direct and indirect impacts to this species.

Furthermore, the Commonwealth’s DoEE determined the proposed works to be ‘Not a Controlled Action’ under the EPBC Act on 10 July 2017. The decision to not assess the proposed works was based on the small scale nature of clearing, the lack of Greater Bilby burrows present within the footprint, and the management actions committed to by the proponent. These conclusions are support[ed] and were reached during the assessment of the proposed minor and preliminary works.

Conclusion

Noting the above information and DWER’s advice that no clearing of native vegetation was authorised through the grant of the works approval, it is considered that DWER’s advice that conditions were not required in relation to the greater bilby, was appropriate and it is therefore recommended that this ground of appeal be dismissed.

OTHER MATTERS

Appellants raised matters which are not directly related to Report 1606 or the conditions of the works approval, and are therefore beyond the scope of the appeals. The appellants’ concerns in respect to the following matters are noted, together with any advice from the EPA or DWER where provided.
In relation to EPA Report 1606

EPA’s consent for minor and preliminary works

An appellant contended that the EPA Chairman should not have given approval for minor and preliminary works to occur before the EPA had completed its assessment of the proposal and Aboriginal people had the opportunity to respond to the proposal.

In response to this matter, the EPA advised that section 41 A(3) of the EP Act provides that the EPA, or the EPA Chairman under delegation, can consent to minor and preliminary works before the EPA completes its assessment of a proposal. The EPA also advised that a Statement of Reasons was published on its website outlining the reasons for the decision. In providing the consent, the EPA advised that it considered a range of matters, including potential impacts on social surroundings. The EPA noted that the section 41 A(3) application was advertised on its website and two public comments were received. Whereupon it concluded that, amongst other things, because the works did not impact on known sites of heritage value, the minor and preliminary works could proceed. The EPA also advised that, in addition to the EPA’s consent for the minor and preliminary works, the proponent was required to obtain other necessary statutory approvals for the works, including those under the AH Act.

In relation to Works Approval W6072/2017/1

Granting of the works approval prior to completion of other statutory approval processes

The appellants raised concerns that the works approval for the preliminary works was granted prior to completion of the PER process, granting of a mining lease and finalisation of negotiations related to Native Title. The appellants believed that this was pre-emptive and created an expectation that the main project proposal would be approved. The appellants considered that all other associated approvals processes should be completed prior to the works approval being granted, and that this would represent due process.

In response, DWER advised that:

- Under section 41(3) of the EP Act, DWER is prohibited from making a decision which could have the effect of causing or allowing a proposal to be implemented without having authority under section 45(7) to do so, with the exception provided by section 41(4) in relation to allowing the doing of minor or preliminary works to which the EPA has consented under section 41A(3). Given that the EPA consented to the preliminary works being implemented, DWER duly finalised its determination of the works approval application.

- The application for works approval W6072/2017/1 was assessed by DWER independent of the main project proposal on its individual merits, as per the application documentation and in accordance with DWER’s regulatory framework.

- Approvals required under the Mining Act and Native Title legislation do not prevent DWER from determining a works approval application under the EP Act. DWER was cognisant that Native Title issues had not been resolved, and understood that this may prevent the submission of a mining proposal for tenement M04/459. It is, however, the responsibility of the works approval holder to ensure that any action or activity permitted by the works approval is carried out in compliance with other statutory requirements. That is, the granting of a works approval does not negate the need for other statutory requirements to be met, nor does it pre-empt the outcomes of those processes.
Groundwater

Appellants referred to the proposed mining below the water table after 15 years of mine operation and reinjection of treated mine process water into the aquifer, which was outlined in the PER document. Concerns were raised around potential impacts to groundwater quality, indirect impact to the water supplies of local Aboriginal communities and risks to the environment of the Fitzroy River drainage basin.

These issues are considered to relate to the proposal outlined in the PER document and considered by the EPA through Report 1606, and are not matters which relate to the conditions of works approval W6072/2017/1. They are therefore beyond the scope of the works approval appeal. Notwithstanding this, these matters have been addressed in Ground 3 in respect to the content and recommendations of EPA Report 1606.

One appellant raised concerns in respect to the abstraction of 95,000 kL/yr of groundwater required for the preliminary works.

In response to these issues, DWER advised that:

- Works approval W6072/2017/1 is in relation to the preliminary works, which do not require dewatering or the discharge of process water/wastewater.
- The works approval holder has an existing licence to take 95,000 kL/yr of groundwater from the Canning-Broome aquifer to provide a source of water for exploratory drilling operations, mineral exploration activities and mining camp purposes. This is regulated by the DWER under the Rights in Water and Irrigation Act 1914 and is not subject to works approval W6072/2017/1.

Native Title

An appellant raised concerns that negotiations between the Walalakoo Native Title Body Corporate for the Nyikina Mangala traditional owners and the works approval holder have not yet been settled with respect to the granting of Native Title approvals for road access to the mine, and therefore any development of mining activities through the preliminary works may be in breach of Native Title rights and interests.

Another appellant was concerned the works approval lacks any conditions to limit potential impacts from the preliminary works on significant Aboriginal heritage sites.

In response, DWER advised that the protection of cultural sites of Aboriginal significance is provided under provisions of the AH Act and is not covered by Part V of the EP Act. DWER noted that it is the responsibility of the works approval holder to ensure that any action or activity permitted by the works approval is carried out in compliance with other statutory requirements. DWER stated that the granting of a works approval does not negate the need for other statutory requirements to be met, nor does it pre-empt the outcomes of those processes.

In its response to this issue, the works approval holder advised that it is currently consulting with the Nyikina Mangala traditional owners in relation to an access agreement along southern sections of the existing Mt Jowlaenga homestead road. The works approval holder also advised that Native Title issues are required to be resolved before full tenure for the project under the Mining Act can be granted.
CONCLUSIONS AND RECOMMENDATIONS

Following the consideration of the issues raised in the appeals, advice from the EPA and DWER and information provided by the proponent/works approval holder, it is considered that the EPA and DWER have had regard for the matters raised through the appeals in the respective assessment processes.

The EPA’s findings that the proposal could be managed to meet its environmental objectives provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Report 1606, is supported by the available information.

With regard to the works approval, it is considered that as no clearing was authorised by the works approval, DWER’s advice that conditions were not required in relation to the greater bilby was appropriate. It is considered that the other grounds of appeal are invalid as they were not directed towards the conditions of the works approval and it is therefore recommended that these grounds of appeal be dismissed.

It is recommended however, that the appeals be allowed to the extent that, consistent with the advice of the EPA, conditions recommended in EPA Report 1606 be amended as follows:

- Include a requirement that the proponent report annual greenhouse gas emissions from the proposal, such as:
  
  **Greenhouse Gas Reporting**
  
  The proponent shall publicly report the greenhouse gas emissions from the proposal on an annual basis, in a manner prescribed by the CEO.

- **Condition 5-1** is amended as set out below:
  
  Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), environment plans and reports relevant to the assessment of this proposal and implementation of this Statement.

The precise wording of the recommended conditions should be finalised through the consultation process under section 45 of the EP Act.

It is otherwise recommended that the appeals in objection to the contents of, and recommendations in EPA Report 1606, and in objection to the conditions of works approval W6072/2017/1 issued by DWER, be dismissed.

If the Minister agrees with these recommendations, the final decision on whether or not the proposal should be implemented is to be made under section 45 of the EP Act.

Emma Gaunt
APPEALS CONVENOR

**Investigating Officer:**
Michael Power, Senior Appeals Officer