Utah Point Berth Project (Stage B)

Port Hedland Port Authority

Report and recommendations
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
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Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
30/7/07	**Level of Assessment set (following any appeals upheld)**	
21/4/08	**Proponent Document Released for Public Comment**	**36**
16/6/08	**Public Comment Period Closed**	**8**
10/11/08	**Final Proponent response to the issues raised**	**20**
12/1/08	**EPA report to the Minister for the Environment**	**7**

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Summary and recommendations

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for Environment on the proposal by the Port Hedland Port Authority (PHPA) to construct and operate a new shipping berth and ore stockpile facility located at Utah Point in Port Hedland, Western Australia.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for Environment on the outcome of its assessment of a proposal. The report must set out the:

- key environmental factors identified in the course of the assessment; and
- EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA is also required to have regard for the principles set out in section 4A of the EP Act.

Key environmental factors and principles

The EPA decided that the following key environmental factors relevant to the proposal required detailed evaluation in the report:

(a) Mangroves (habitat loss);

(b) Air Quality (dust); and

(c) Noise.

There were a number of other factors which were very relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

The following principles were considered by the EPA in relation to the proposal:

(a) the principle of the conservation of biological diversity and ecological integrity; and

(b) the principle of waste minimisation.

Conclusion

The EPA has considered the proposal by the Port Hedland Port Authority to construct and operate a new shipping berth and ore stockpile facility located at Utah Point in Port Hedland Western Australia.

The proposal will result in the loss of approximately 18.7 ha of mangroves. The EPA's Guidance Statement No. 29 for Benthic Primary Producer Habitat (BPPH) defines cumulative loss threshold for BPPH. The additional loss of mangroves as a result of this proposal and other proposals in the port area takes the cumulative threshold loss of mangroves to approximately 11% and hence, the proposal is in an

area where the cumulative loss threshold has now been exceeded. The EPA's Guidance No. 29 provides a methodology that proponents should address where the threshold is being approached or exceeded, so that the ecological risks and consequences of impacting BPPH can be established. The EPA notes that the proponent has considered its proposal in accordance with the EPA's Guidance. The proposal has been designed to avoid and minimise mangrove losses, in particular, the loss of closed canopy mangroves. These are known to have a high biodiversity value. The proponent has also developed an environmental management plan for mangroves which includes management actions that can ensure the impacts on mangroves are confined to a maximum area not exceeding the prescribed 18.7 ha. This maximum area of mangroves to be lost as a result of the implementation of the proposal is specified in the key characteristics table which forms part of the recommended conditions. The loss of approximately 18.7 ha of mangroves is judged by the EPA as unlikely to affect significantly the integrity of the mangrove ecosystem.

The EPA acknowledges that effective dust management is complicated, particularly in Port Hedland because of the range of dust sources and the lack of an adequate buffer between the existing port operations and sensitive premises (in particular, west Port Hedland). The proponent's dust emissions modelling data indicates that there would be a general reduction in the overall dust concentration in areas immediately adjacent PHPA operations at Berth 1 with negligible impact on receptors at Wedgefield Industrial Estate, Port Hedland Primary School and Hedland Senior High School. This benefit is largely attributed to the Utah Point Berth Project (UPBP) being located further away from Port Hedland and it being a purpose-built facility with dust attenuating design enhancements. The EPA notes that this may include further design and structural improvements to this proposal over time, if determined necessary through licensing processes, to achieve an improvement in air quality in the long term. The EPA considers that the proposed dust management for the proposal is appropriate and will lead to an improvement in the local air quality. The EPA considers that dust will be most effectively managed under Part V EP Act licensing rather than applying conditions on this proposal under Part IV of the EP Act. Licensing allows for the continual review of dust management for all facilities in the affected area that generate dust and annual review of licence conditions will provide greater responsiveness and flexibility in developing actions to respond to contemporary monitoring information.

In relation to noise there is long standing issue of non-compliance with assigned noise levels in Port Hedland. Modelling conducted by PHPA predicts that the noise emissions from both the UPBP and the future PHPA port operations in Port Hedland, though exceeding the acceptable noise standard, will generally be lower than if the UPBP is not constructed due to the noise source being relocated away from the residential area of the township. In addition to this, re-routing the large trucks away from the west end of the town will also see a significant reduction in noise levels. The re-routing of trucks may result in some exceedances in noise levels for a small number of properties in South Hedland and caretaker properties in the Wedgefield Industrial Estate. The proponent is committed to instituting noise control treatments to affected dwellings.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's environmental objectives, provided that there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4.

Recommendations

The EPA submits the following recommendations to the Minister for Environment:

1. That the Minister notes that the proposal being assessed is for the construction of a new ship berth and stockpile facility located at Utah Point, Port Hedland Western Australia.
2. That the Minister considers the report on the key environmental factors and principles as set out in Section 3;
3. That the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4, and summarised in Section 4, including the proponent's commitments; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 4 of this report.
5. That the Minister considers the matters raised in 'Other Advice' with the Ministers for Planning, Transport and State Development.

Conditions

Having considered the proponent's commitments and information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by the Port Hedland Port Authority to construct the Utah Point Berth Project is approved for implementation. These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

(a) that the proponent shall implement the proposal as assessed by the EPA and described in the Schedule 1 - Key Characteristics Table that further defines the extent of environmental impacts allowed if this proposal is implemented.

Contents

1. Introduction and Background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the key environmental factors and principles for the proposal by the Port Hedland Port Authority (PHPA) to develop a new stockpiling and ship-loading facility at Utah Point on Finucane Island, Western Australia (WA). This proposed facility will cater for the expected increase in export tonnage through Port Hedland.

The PHPA is the statutory body responsible for the management of the port of Port Hedland which is located in the Pilbara Region of WA. The port is the key export centre for many mines that that are operating in the region and handles iron ore, copper, manganese, chromite and salt as well as general cargo. PHPA currently manages three berths at the port which are operating at maximum capacity and this is one of the main justifications for the construction of the Utah Point Berth Project (UPBP).

The proposal was referred to the EPA on 30 July 2007 and the Level of Assessment was set at Public Environmental Review (PER) with an eight week public review period under the *Environmental Protection Act 1986* (EP Act). The public review period commenced on 21 of April 2008 and closed on 16 June 2008.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses the key environmental factors and principles for the proposal. The Conditions and Commitments to which the proposal should be subject, if the Minister determines that it may be implemented, are set out in Section 4. Section 5 provides Other Advice by the EPA, Section 6 presents the EPA's conclusions and Section 7, the EPA's Recommendations.

Appendix 5 contains a summary of submissions and the proponent's response to submissions and is included as a matter of information only and does not form part of the EPA's report and recommendations. Issues arising from this process, and which have been taken into account by the EPA, appear in the report itself.

2. The proposal

The Utah Point Berth Project consists of two separate stages:

1. Stage A: Dredging and Reclamation; and
2. Stage B: Construction and Operation.

Stage A, dredging and reclamation works for the UPBP was approved by the Minister for Environment as an amendment to the existing Fortescue Metals Group (FMG) approval and managed according to the approved conditions. The works for Stage A have been successfully completed.

The EPA determined that Stage B, the construction and ongoing operation of stockyard and ship-loading facilities required formal environmental impact assessment. This assessment report relates only to Stage B.

Project Description

The proposed UPBP development is located within the Port Hedland harbour on the eastern shores of Finucane Island. It is located west of the existing port facilities at Nelson Point and directly opposite the existing public berths managed by PHPA. To the north of the UPBP development site is the BHP Billiton Iron Ore (BHPBIO) Finucane Island stockpile and port berth facility. To the south-east of the UPBP site is the FMG stockpile and port berth facility at Anderson Point (Figure 1).

Current plans allow for the export of 9 million tonnes per annum (Mtpa) of product from the UPBP facility, delivered to the UPBP site by road trains. The proposed footprint for the UPBP development includes the following:

- dedicated multi-user access road to Finucane Island including causeway widening over West Creek;
- stockyard area on Stanley Point, Finucane Island;
- elevated perimeter road around stockyards for right-side road train dumping;
- seawalls around perimeter road to protect from storm surge and high spring tides;
- workshops, security control room, fuel storage, offices and associated infrastructure;
- clearing of 18.7 hectares (ha) of mangroves (including 1.8 ha of closed canopy mangroves);
- potential borrow pit areas located along the access road;
- power supply, potable water, dust suppression, fire protection, settlement ponds and miscellaneous services;
- materials conveying system including transfer towers and sample station;
- mobile loadout hopper trains on rails over a stockyard central conveyor;
- travelling Shiploader; and
- wharf designed to accommodate Panamax and small Cape size vessels, including associated facilities and services.

The main characteristics of the proposal are summarised in Table 1 below.

Table 1: Summary of Key Proposal Characteristics

Element	Description
Total area of proposed disturbance	• Maximum total area to be disturbed is approx. 87 ha as shown on Figure 1 and 3 including: • access road approx. 35 ha comprised of two sealed 3.5 m lanes with a 1 metre (m) sealed shoulder and a 1 m unsealed shoulder; • stockyard area approx. 19 ha; • 1 000 m long and 200 m wide, 10 m wide elevated perimeter ring road constructed at 11.5 m Chart Datum; • wharf development approx. 3 ha; • connecting area wharf to stockyards approx. 4.5 ha; and • potential borrow and spoil areas approx. 25 ha.
Mangrove habitat protection	• total mangrove clearing approx. 18.7 ha (including approx 1.8 ha of closed canopy mangroves) as depicted in Figure 2.

Dust suppression	• stackers are to be fitted with boom water spray heads to minimise dust emissions; and • ship loading is to be conducted with a 'Cleveland Cascading Chute' (or equivalent).
Noise suppression	• the use of recognised 'best practice' enclosed drives for conveyors, stackers and ship loaders; and; and • the provision of specific acoustic treatments (to any residences in Wedgefield Industrial Estate that are identified as being adversely affected by increased noise levels from ore trucks en-route to the UPBP).
Stormwater management	• construction of a seawall at 11.5 m Chart Datum to isolate the stockyard area from the mangrove systems and to protect the facility from storm surge and high tides; • stockyard is to be constructed to finished level 11.5 m Chart Datum also; • internal drainage system designed to retain all runoff on-site and have the capacity to deal with cyclonic conditions; • construction of a lined recirculation water pond that that will have a storage capacity of approximately 50 000 m^3 ; and • installation of a impervious 'geotechnical barrier' 500 – 700 millimetres (mm) beneath the surface of the stockyards to prevent infiltration of potential contaminants to groundwater.

3. Key environmental factors and principles

Section 44 of the EP Act requires the EPA to report to the Minister for Environment on the environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

The identification process for the key factors selected for detailed evaluation in this report is summarised in Appendix 3. The reader is referred to Appendix 3 for the evaluation of factors not discussed below. A number of these factors, such as:

- terrestrial flora, vegetation and fauna;
- impacts on marine environment and fauna; and
- Aboriginal heritage.

are very relevant to the proposal, but the EPA is of the view that the information set out in Appendix 3 provides sufficient evaluation.

It is the EPA's opinion that the following key environmental factors for the proposal require detailed evaluation in this report:

1. Mangrove (habitat loss);
2. Air Quality (dust); and
3. Noise.

The above key factors were identified from the EPA's consideration and review of all environmental factors generated from the PER document and the submissions received, in conjunction with the proposal characteristics.

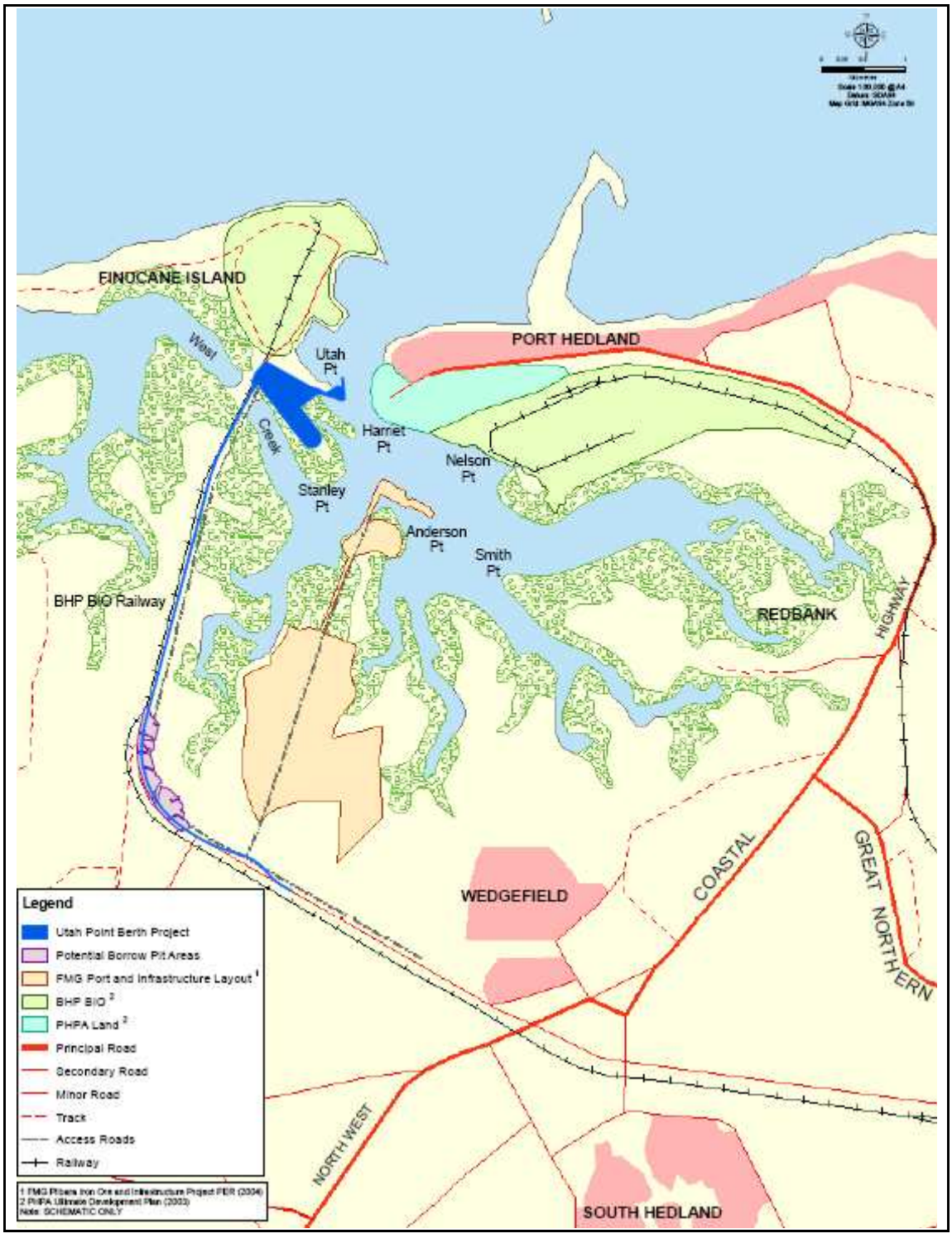

Figure 1: Location Plan of UPBP Proposal (SKM, 2008)

Details on the key environmental factors and their assessment are contained in Sections 3.1 - 3.3. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

3.1 Mangrove Habitat Loss

Description

The mangroves in the Port Hedland region are part of a suite of species that occur in the arid Pilbara coastal region. In particular, the mangroves of Utah Point are dominated by assemblages that inhabit muddy tidal flats, with a proportion that inhabit limestone pavements and sand bars. The mangrove communities of Port Hedland harbour generally are considered to be regionally significant from the point of view of coastal productivity (Semeniuk, 2007). However, the mangroves at the UPBP site are not intrinsically significant as they contain species that are very well represented elsewhere with no unusual assemblages or species associations. Port Hedland harbour is now considered to be a highly modified environment and as a result, the associated mangroves have ceased to exist in a tidal ecosystem wilderness (Semeniuk, 2007).

As discussed previously, the Port Hedland mangroves function as part of the regional biological productivity and contribute to the coastal ecosystem in the region. The proposed construction of UPBP will result in the clearing of 18.7 ha of mangroves which includes 1.8 ha of high value closed canopy mangroves. The combined total clearing equates to 0.7% of the mangrove representation within the Port Hedland Industrial Area Management Unit as defined according to the EPA Guidance Statement 29 - *Benthic Primary Producer Habitat Protection*. The potential loss of the mangroves in a regional perspective is considered to be relatively minor (Semeniuk, 2007).

The total mangrove area in this management unit prior to European Settlement is estimated at 2676 ha. When considered in isolation of other current proposals, the proposal would take the cumulative loss of mangroves in the management unit to 267.9 ha or approximately 10.7%.

UPBP has been specifically designed to avoid and minimise mangrove losses, in particular, the loss of closed canopy mangroves. These are known to have a high biodiversity value and the design of the stockyards has specifically been ‘pulled back’ from the inter-tidal zone where these closed canopy mangroves exist (Figure 2).

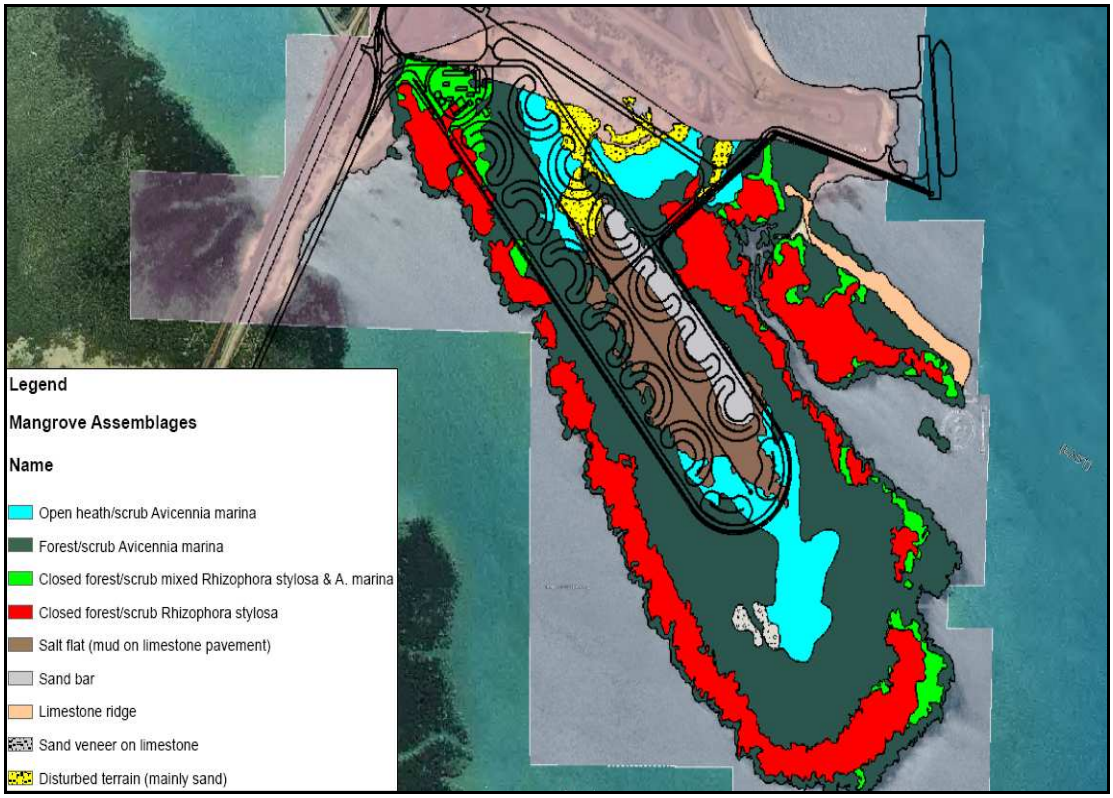

Figure 2: Stockyard Design and Mangrove Assemblages at the UPBP Site (SKM, 2008)

Submissions

- Rationale for site selection needs to be justified in the context of the EPA's Guidance Statement No's 1 & 29 respectively.
- Indirect and direct impacts on mangrove communities in the proposal area will require further investigation and a commitment to ongoing monitoring of mangrove health is required. The potential to alter the hydrology of the area, increased turbidity and sedimentation during construction and operation will also need to be addressed.
- The cumulative impact mangrove loss in relation to the 10% threshold limit needs to be more adequately explained. In particular, the impact on marine fauna needs to be explained in more detail in the PER.
- There is a need to form an outcome based Mangrove Management Plan (MMP) and this should be developed to provide a framework to ensure any detrimental impacts are managed within pre-determined acceptable limits.

Assessment

The EPA's environmental objective for this factor is to maintain the abundance, diversity, geographical distribution and productivity of mangroves at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge (EPA, 2008b).

The area for assessment is the Port Hedland Industrial Area Management Unit which includes the Port Hedland harbour, Utah Point (ship loading & berth) and Stanley Point (stockyards). EPA's Guidance Statement No. 29 defines a cumulative loss threshold for Category E, which includes Development Areas such as inner port areas

as being up to 10% loss of BPPH. Proposals that exceed the cumulative loss threshold are classed as Category F. In accordance with Guidance Statement 29, the Port Hedland Industrial Area Management Unit is described as a Category F area *"where cumulative loss thresholds have been significantly exceeded"* (EPA, 2004).

The EPA has been made aware of data that suggests that the benchmark figure for pre-European mangrove habitat of 2676 ha does not adequately take account of the dynamic nature of mangrove systems. In particular, there is evidence that the mangrove systems of Port Hedland have the ability to self-regenerate to a certain level.

Furthermore, it should be noted that the EPA has already considered the level of exceedance of this threshold in its assessment of BHP Billiton Iron Ore's Rapid Growth Project 5 (RGP5) (EPA, 2008a). The EPA's assessment of the RGP5 proposal recognised that 18.7 ha of mangroves would be lost for the UPBP with approximately 6.49 ha loss associated with the RGP5. Should both RGP5 and this proposal be implemented, the total cumulative loss would be approximately 11.0 % (Table 2). It should be noted that the 10% threshold specified in the EPA's Guidance Statement No. 29 should not be interpreted, in the first instance, as a limit to development. It is an assessment tool which details the methodology that proponents should be taking where the threshold is being approached or exceeded, so that the ecological risks and consequences of impacting benthic primary producer habitat can be established.

A proponent who wishes to remove BPPH from a Category F area should:

- demonstrate an understanding of the ecological role and value of the BPPH within the local context, and then determine the significance of any impacts on ecosystem integrity;
- use a 'best practice' approach to minimising impacts;
- develop and implement a comprehensive environmental management plan that has as its primary objective the long-term maintenance of ecosystem integrity; and
- develop an offsets package where it has been demonstrated that the threshold has been significantly exceeded or there are likely to be impacts on ecosystem integrity.

Table 2: Cumulative Loss of Mangroves in Port Hedland

Proposed Development	Original Mangrove Habitat Extent (ha)	Loss of Mangroves (ha)	Cumulative Loss of Mangroves (%)
Port Hedland Industrial Area – **Current 2008**	2,676	267.9	10.7
Port Hedland Industrial Area – **Proposed**	2,676	293.1 (including the loss of 6.49 ha mangroves for the BHPBIO RGP5 and 18.7 for UPBP)	11.0

The PHPA has demonstrated a 'best practice' approach to minimising impacts, involving the following actions:

- the project design phase included a risk analysis to determine the most suitable project design of the UPBP to minimise loss of high quality mangrove forest; and
- designing the footprints of the proposed access causeway and stockpile facility to minimise the impact on mangrove loss within engineering constraints.

A draft Environmental Framework for a MMP was submitted by the PHPA as part of the Environmental Referral Document (SKM, 2008) that included monitoring programs consisting of:

- mangrove health surveys;
- restriction of clearing and site works to the minimum area required for construction;
- water quality monitoring;
- monitoring of sediment deposition and fugitive dust within the mangrove community; and
- assessment of the potential for changes in soil salinity associated with the construction of the bunds.

The EPA notes that the MMP includes actions in regards to clearing methods that would ensure the impacts on mangroves are confined to a maximum area not exceeding the prescribed 18.7 ha. This maximum area of mangroves to be lost as a result of the implementation of the proposal is specified in the key characteristics table which forms part of the recommended conditions that would apply to this proposal if the project is approved for implementation.

Environmental offsets do not form part of this proposal however, options are currently being investigated at a strategic level as part of the proposed 'Ultimate Development Plan' being prepared by the PHPA and other agencies. PHPA has advised that it is committed to providing offsets, which will be developed in consultation with the Department of Environment and Conservation (DEC), to compensate for the clearing of mangroves associated with this proposal and in particular to facilitate a strategic approach to the long term development of the harbour while ensuring that the ecological functions of the mangrove communities are retained. PHPA are currently working with recognised mangrove specialist Vic Semenuik and liaising with the DEC to develop a mangrove offset strategy. This pre-emptive work is appropriate, given that cumulative losses are exceeding the 10 % threshold.

Summary

Having particular regard to the:

- the level of cumulative loss of mangroves in Port Hedland is approaching 11%;
- that the proposal has been designed to limit impacts on mangroves (limited to a 18.7 ha loss) which is to be included in the key characteristics table that forms part of the recommended conditions that would apply to this proposal if the project is approved for implementation;

- the management measures proposed by the PHPA to ensure it will limit the loss of mangroves to 18.7 ha; and
- the proposed level of clearing for the proposal is not regarded by the EPA to be a significant exceedance of the BPPH cumulative loss threshold of 10%

it is the EPA's opinion that that the proposal can be managed to meet the EPA's environmental objectives for this factor.

3.2 Air Quality (Dust)

Description

The semi-arid landscape of the Pilbara is a naturally dusty environment with wind-blown dust being a significant contributor to ambient dust levels within the region. Dust is a key health and nuisance concern for residents in Port Hedland, largely due to the proximity of residential areas to port operations. Other minor sources of dust emissions include vehicle movements, diesel combustion and shipping movements.

Dust or particulate matter (PM) is generally referenced according to size, and the smaller the particle, the deeper it can be inhaled into the lungs. In general, PM10 is the measurement of particulate matter used to assess health impacts of dust, as particles of 10 microns in diameter or less can penetrate the lungs and enter the bloodstream. Dust emissions from chromite and manganese ores, in the form of chromite ($FeCr_2O_4$) and manganese oxide (MnO_2), have historically raised public health concerns due to the potential toxicological effects of exposure to elevated concentrations of these metals.

Submissions

- The health and amenity of residents in the west-end of Port Hedland is not adequately protected from adverse impacts of the cumulative dust levels arising from combined port operations. It was acknowledged that this is likely to be outside of the scope of individual proponents and will require a more strategic approach.
- The justification for omission of background particulate matter in the modelling that was undertaken for the proposal was not made sufficiently clear in the PER.
- Operational monitoring locations need to be determined and trigger level dust abatement measures need to be assigned. The proponent also needs to justify a level of particulate matter in light of the fact that National Environment Protection Measure (NEPM) levels are already being exceeded in the area.

Assessment

The EPA's environmental objective for this factor is to ensure that air emissions do not adversely affect environmental values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards (EPA, 2008b).

The EPA acknowledges that effective dust management is complicated, particularly in Port Hedland because of the range of dust sources and the lack of an adequate buffer between the existing port operations and sensitive premises. The criterion to assess potential health impacts is the NEPM PM10 standard of 50 $\mu g/m^3$ (24 hour average).

Previous studies that have been conducted have demonstrated that background levels of dust in the Pilbara region often exceed the NEPM standard level for PM_{10} of 50 µg/m3 (DoE, 2004). However, despite the naturally high background levels of PM10 in the Pilbara region, most of the PM10 in the town of Port Hedland is locally generated with the primary sources of dust being port operations (SKM, 2008). Existing port operations include:

- BHPBIO Nelson Point operations;
- FMG Point Anderson operations;
- BHPBIO Finucane Island Operations; and
- PHPA Operations including the export of manganese and chromite ores from Berth 1.

Dust emissions from the manganese, chromite and iron ore exports vary with the moisture content of the ore; size distribution of the ore; ability of the ore to form crusts; and, the prevailing wind direction and speed. Observations made at similar ore handling facilities in the Pilbara indicate that wind generated dust emissions from stockpiles and open areas is typically low when wind speeds are below a certain threshold and increase rapidly as wind speeds increase above the threshold (Pitts, 2000). Annual meteorological data, recorded at Port Hedland Airport, indicates that the predominant winds in Port Hedland are east-south easterly winds, occurring primarily in winter, and north westerly winds, occurring primarily in the summer. This has important implications for the proposed location of the UPBP as it is viewed as a more favourable site in relation to prevailing wind direction and speed.

In assessing this proposal, air quality impacts have been modelled for chromium and manganese dust as well as general dust (PM10).

The EPA sought further independent advice from the Department of Health on the potential health impact of chromium and manganese dusts. The Department of Health advised that past monitoring data indicates that levels of chromium and manganese may be problematic over the long term in Port Hedland. Consequently, any strategy that reduces the community exposure may provide health benefits.

The modelling done by the PHPA indicates that moving the chromium and manganese stockpiles away from the westernmost end of Port Hedland will "comparatively lessen the impact on that part of town," although the predicted annual average is still slightly above World Health Organisation guidelines (Figures 3 & 4).

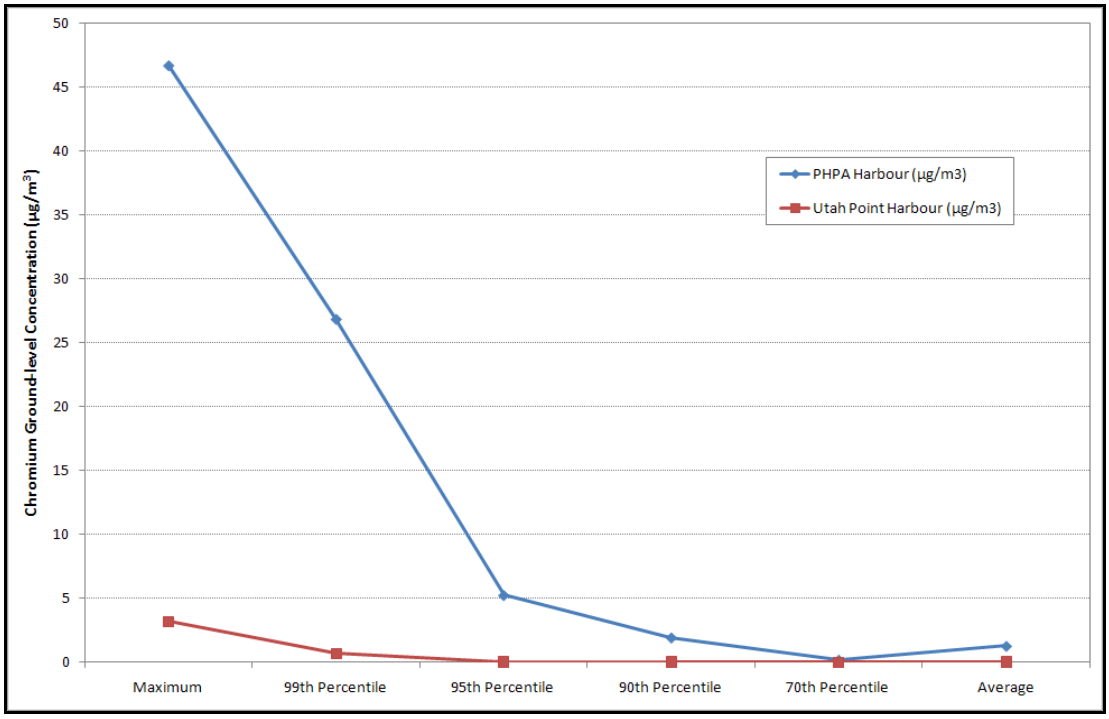

Figure 3: ***Predicted 24-hour average operational chromium (PM_{10}) concentrations at the harbour monitoring site, excluding background PM10 concentrations (SKM, 2008).***

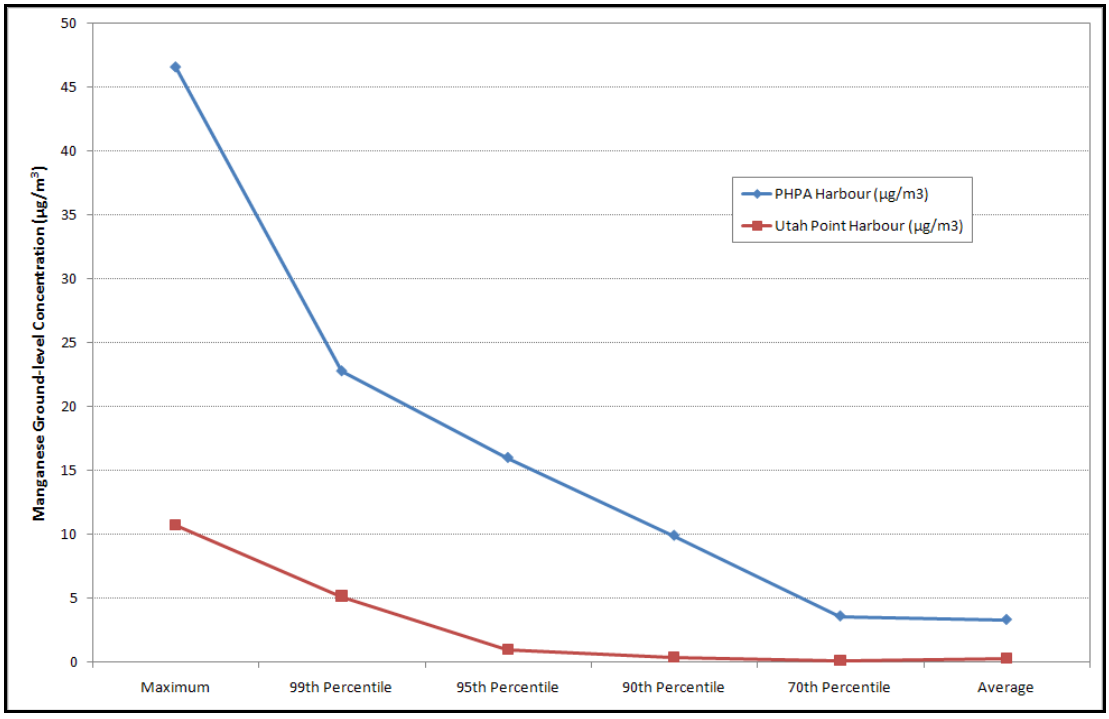

Figure 4: ***Predicted 24-hour average operational manganese (PM_{10}) concentrations at the harbour monitoring site, excluding background PM10 concentrations (SKM, 2008).***

For general dust emissions (PM10) modelling data again indicates that there would be a general reduction in the dust concentration in areas immediately adjacent PHPA operations at Berth 1 with negligible impact on receptors at Wedgefield, Port Hedland Primary School and Hedland Senior High School (Figure 5). The EPA notes that this benefit is largely attributed to changes in management practices at BHPBIO Nelson Point operations and the UPBP being a purpose-built facility with dust attenuating design enhancements that is located further away from the township. In addition to this, the UPBP is situated out of the prevailing winds that otherwise disperse dust toward residential areas.

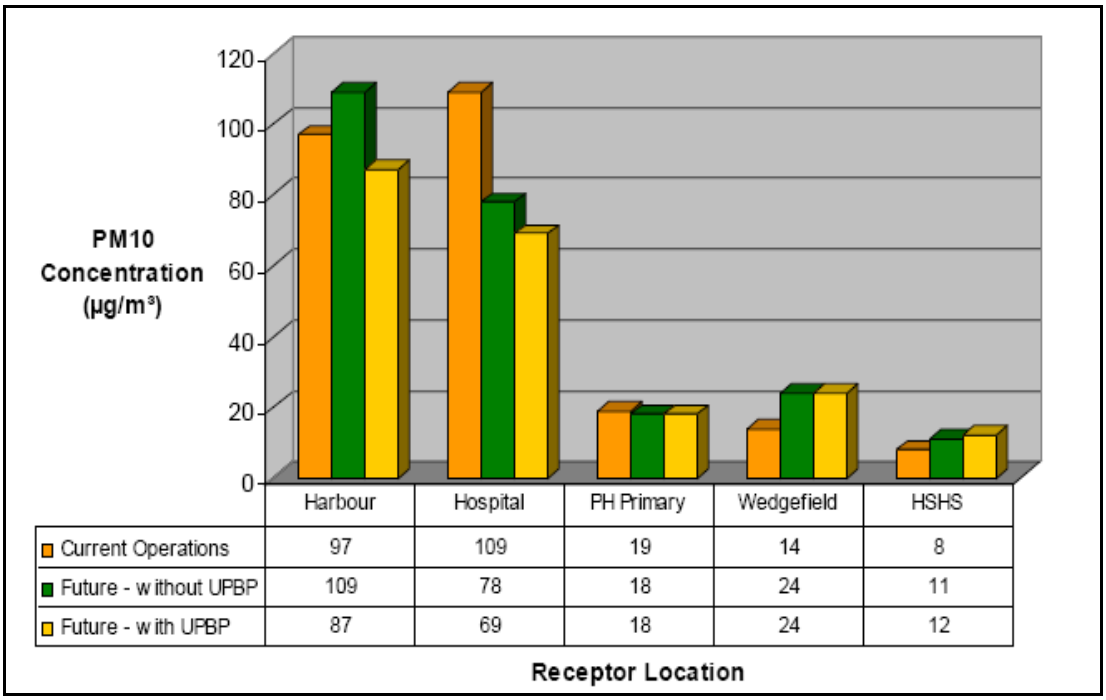

Figure 5: Comparison of Predicted PM10 Concentrations in Port Hedland (SKM, 2008)

The EPA considers that the proposed dust management for the proposal is appropriate. Although it does not solve all of the existing dust problems in Port Hedland, this proposal, if implemented, will lead to an improvement in local air quality in Port Hedland. Dust in the very busy industrial port location of Port Hedland is an issue that will be most effectively managed under Part V EP Act licensing rather than applying conditions on this proposal under Part IV of the EP Act. Licensing allows for the continual review of dust management for all facilities in the affected area that generate dust. Annual review of licence conditions will provide greater responsiveness and flexibility in developing actions to respond to contemporary information. The EPA notes that this may include further design and structural improvements to this proposal over time, if determined necessary through licensing processes, to achieve an improvement in air quality in the long term. The EPA provides further comment on planning for long term improvements in air quality under "Other Advice" in Section 5.

Summary
Having particular regard to the:

- long standing dust problems in the town of Port Hedland;
- the results of modelling indicating that this proposal will lead to an improvement in local air quality; and
- the proposal, if implemented, would be subject to licensing under Part V of the EP Act that can have regard for air quality limits for dust,

it is the EPA's opinion that that the proposal can be managed to meet the EPA's environmental objectives for this factor.

3.3 Noise

Description
The ambient noise level in Port Hedland, particularly at the west end, is largely dominated by operational emissions from existing infrastructure that often operates continuously. Current noise levels within the Port Hedland township currently exceed levels permitted under Western Australian noise regulations due to the close proximity of port operations to commercial and residential areas.

Noise emissions from the port are not continuous in nature and can vary considerably depending on the activities being undertaken. For the UPBP proposal the noise generated can vary as essential plant such as conveyors, front end loaders and ship loaders are utilised as required. There also can be an overlap of noise emitted from a number of port users and from other activities in the Port Hedland area and as a consequence, noise emissions can be cumulative at their point of impact. Prevailing weather conditions also have a significant effect on the extent to which noise emitted by port operations may impact on the community, particularly at night when atmospheric conditions can enable noise to travel greater distances.

The factor of noise in relation to the UPBP proposal can be considered to have two distinct components being:

- **Traffic noise**
  The cessation of transporting manganese and chromite ores through the town of Port Hedland, particularly the residential west-end, will significantly reduce road transport generated noise. This is attributable to the trucks taking a direct route along the Finucane Island Access Road which is adjacent to the Wedgefield Industrial Estate to access the UPBP facility at Utah Point. Modelling performed by the PHPA predicts that traffic noise levels at Port Hedland will satisfy traffic noise criteria.

  The new route mentioned above will however result in traffic noise criteria in Wedgefield and South Hedland being exceeded, with minor changes in noise levels for some properties in South Hedland and for approximately 10 caretaker properties in the Wedgefield Industrial Estate. The increase is predicted to be up to 3.5 decibels (dB), which may be considered to be barely perceptible. The

proponent is committed to instituting noise control treatments to affected dwellings. These treatments may vary from dwelling to dwelling and need only reduce the noise level by up to 4 dB(A) maximum. It is expected that the treatments required will be practically achievable.

In addition to the above, the proposed development of a new access route to the Finucane Island Access Road by Main Roads Western Australia away from the roads that service the industrial estate, traffic noise impacts are expected to be further reduced in Wedgefield and South Hedland

- **Operational noise**
  During the operation of the proposed UPBP, the generation of operational (industrial) noise from front end loaders, hoppers, conveyors, ship loading, and low speed truck movements have the potential to add to the overall noise levels within the harbour area. The proponent has outlined several key strategies to reduce the overall noise level generated at the existing Public Berth No. 1 which will have an impact on the cumulative noise level within the port region. These include the decommissioning of the following noise generating plant:

  - the use of Front End Loaders at the Wharf and stockpile area (and the use of a FEL at the Gilbert St stockpile) and associated truck movements along Gilbert Street (up to 300 truck movements when a ship was being loaded);
  - CV-08 conveyors;
  - Consolidated Minerals equipment (screening plant & conveyors);
  - transfer towers associated with decommissioned conveyors; and
  - hoppers (x2).

Submissions

- Predicted noise emissions from the proposed UPBP and public berths operated by the PHPA will not be able to comply with the assigned noise levels.
- Proposed increase in heavy haulage traffic will have adverse impacts on residents within Wedgefield Industrial Estate.
- The UPBP facility should be designed to achieve compliance with the noise regulations.
- A noise improvement plan should be prepared to address practicable noise reduction from existing public berths.
- The EPA consider developing a policy position for Port Hedland township, involving a series of practicable noise targets for existing and proposed industries at the port.

Assessment

The EPA's environmental objective for this factor is to protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring that noise levels meet the statutory requirements and acceptable standards (EPA, 2008b).

Modelling conducted by PHPA predicts that the noise emissions from both the UPBP and the future PHPA port operations in Port Hedland, though exceeding the acceptable noise standard, will generally be lower than if the UPBP is not constructed (Table 3). This is for a similar reason outlined under the environmental factor of 'Air Quality'. That is, the noise source is being relocated to Utah Point, away from the residential area of the township. In addition to this, re-routing the large trucks that are currently required to transport the chromite and manganese ores through the west end of the town will also see a significant reduction in noise levels. Acoustic attenuation devices are also proposed to mitigate the effect on a small number of residences within the Wedgefield Industrial Estate along the new proposed ore carrying truck route.

Table 3: Modelled Operational Noise Levels with and without the UPBP at Noise Sensitive Receptors

	Pier Hotel	**Esplanade Hotel**	**Backpackers Hostel**	**Port Hedland Hospital**
Noise levels with UPBP (dB(A))	56	58	51	36
Noise levels without UPBP (dB(A))	56	61	49	43

The EPA notes the broader issue of the PHPA not achieving the assigned noise levels for the combined port operation, including the proposed UPBP which is considered as not practically possible with current technology. In response to this, the PHPA has committed to prepare a Noise Improvement Plan which will be implemented over the next 10 years to implement noise control on existing operations at PHPA operated facilities. This is predicted to result in a noise reduction of 1-2 dBA in total emitted noise level. Regular equipment monitoring and maintenance of all equipment, vehicles and other materials, will be undertaken to ensure noise emissions are minimised.

Summary

Having particular regard to the:

- long standing issue of non-compliance with assigned noise levels in Port Hedland; and
- the results of modelling indicating that this proposal will lead to some improvement in local noise levels.
- the PHPA is committed to instituting noise control treatments to affected caretaker dwellings in the Wedgefield Industrial Estate and this forms part of the proposal,

it is the EPA's opinion that that the proposal can be managed to meet the EPA's environmental objectives for this factor.

3.4 Environmental principles

In preparing this report and recommendations, the EPA has had regard for the object and principles contained in s4A of the *Environmental Protection Act (1986).* Appendix 3 contains a summary of the EPA's consideration of the principles.

4. Conditions and Commitments

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the conditions and procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

In developing recommended conditions for each project, the EPA's preferred course of action is to have the proponent provide an array of commitments to ameliorate the impacts of the proposal on the environment. The commitments are considered by the EPA as part of its assessment of the proposal and, following discussion with the proponent, the EPA may seek additional commitments.

The EPA recognises that not all of the commitments are written in a form which makes them readily enforceable, but they do provide a clear statement of the action to be taken as part of the proponent's responsibility for, and commitment to, continuous improvement in environmental performance.

4.1 Proponent's commitments

The proponent's commitments as set out in the PER are shown in Appendix 4. This includes Environmental Management Plans (EMP's) that will be designed to satisfy the requirements of AS/NZS ISO 14001 Environmental Management Systems for both the construction and operational phases of the UPBP proposal. These include:

- Mangrove management;
- Air quality
- Noise;
- Aboriginal heritage;
- Acid sulfate soil;
- Contaminant management;
- Greenhouse gas emissions;
- Marine water quality;
- Mosquito management;
- Surface and groundwater management;
- Terrestrial fauna;
- Terrestrial flora and vegetation management, including weed management;
- Traffic;
- Turtle management and monitoring; and
- Waste management.

4.2 Recommended conditions

Having considered the proponent's commitments and information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by the Port Hedland Port Authority to construct the Utah Point Berth Project is approved for implementation. These conditions are presented in Appendix 4. Matters addressed in the conditions include the following:

1. that the proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in the Schedule 1 - Key Characteristics Table that further defines the extent of environmental impacts allowed if this proposal is implemented.

Other regulatory mechanisms relevant to the proposal are that it will be subject to Works Approval and Licensing under Part V of the EP Act. It should also be noted that in relation to the environmental issue of Air quality, the EPA has concluded that this proposal, if implemented, will lead to an improvement in the local air quality. The EPA has not recommended specific conditions relating to air quality as licensing allows for the continual review of dust management for all facilities in the affected area that generate dust. Annual review of licence conditions will provide greater responsiveness and flexibility in developing actions to respond to contemporary information. This may include further design and structural improvements to this proposal over time, if determined necessary through licensing processes, to achieve an improvement in air quality in the long term.

5. Other Advice

Although the EPA notes this proposal will lead to some local improvement in air quality and reduction in noise levels in the west end of Port Hedland, the EPA wishes to emphasise that it will not result in improvements in the overall area of Port Hedland where dust and noise impacts are already of concern. As a new facility, this proposal will result in an incremental increase in dust and noise emissions to the overall air-shed of Port Hedland. Dust and noise levels in the Port Hedland townsite have historically been above currently accepted recommended levels, and still are. This is something that has been known for some time and has led to some coordinated attempts by the state and local governments and industry to plan and act for long-term improvements to air quality and noise levels. However, in the EPA's opinion this has not delivered integrated land use planning and management outcomes that will ensure acceptable air quality and noise levels are achieved in the future.

Furthermore, the EPA is concerned that previous cumulative impact studies (undertaken as part of the planning process) and recent scientific literature, indicates that the current land use strategy for the town of Port Hedland is likely to be inadequate in terms of reducing human health impacts from iron ore dust. The current strategy is to plan for the relocation of more vulnerable people (e.g. seniors, children and persons with existing heart or lung disease) out of the affected areas of Port Hedland with the expectation that this will reduce human health impacts to acceptable levels. The exclusion from this strategy of the remainder of the Port Hedland population in affected areas is of concern. In addition, a recent study by Perez et al,

(2008) it was found that airborne dust comprised of PM10 sized particles significantly increased the risk of mortality for the residents in the study location of Barcelona, Spain. These results were for PM10 arising from dust in the Sahara desert and suggest that the health effects of iron ore dust at the levels experienced in Port Hedland may be greater than previously thought and that all residential areas may be affected. The EPA is therefore of the view the health effects of PM10 arising from sources such as dust in the absence of other sources needs to be given urgent attention.

It is the EPA's view that a coordinated government and industry approach to the development and execution of an integrated government and industry strategy (with explicit emission reduction strategies and explicit exposure reduction strategies) is required with strong and inclusive governance arrangements. This will ensure accountability for reporting publicly on performance in achieving air quality and noise objectives.

The EPA regards this as an outstanding issue that needs to be addressed as a matter of high priority. It will require leadership, co-ordination and resolve at a level greater than has been evident hitherto.

6. Conclusions

The EPA has considered the proposal by the Port Hedland Port Authority to construct and operate a new shipping berth and ore stockpile facility located at Utah Point in Port Hedland Western Australia. The key environmental factors identified by the EPA in its assessment of the proposal are mangroves, air quality (dust) and noise.

The proposal will result in the loss of approximately 18.7 ha of mangroves. The EPA's Guidance Statement No. 29 for Benthic Primary Producer Habitat (BPPH) defines cumulative loss threshold for BPPH. The additional loss of mangroves as a result of this proposal and other proposals in the port area takes the cumulative threshold loss of mangroves to approximately 11% and hence, the proposal is in an area where the cumulative loss threshold has now been exceeded. The EPA's Guidance No. 29 provides a methodology that proponents should be addressing where the threshold is being approached or exceeded, so that the ecological consequences of impacting benthic primary producer habitat can be established. The EPA notes that the proponent has considered its proposal in accordance with the EPA's Guidance. The proposal has been designed to avoid and minimise mangrove losses, in particular, the loss of closed canopy mangroves. These are known to have a high biodiversity value. The proponent has also developed an environmental management plan for mangroves which includes management actions that can ensure the impacts on mangroves are confined to a maximum area not exceeding the prescribed 18.7 ha. This maximum area of mangroves to be lost as a result of the implementation of the proposal is specified in the key characteristics table which forms part of the recommended conditions. The loss of approximately 18.7 ha of Mangroves is judged by the EPA as unlikely to significantly affect the integrity of the Mangrove ecosystem.

The EPA acknowledges that effective dust management is complicated, particularly in Port Hedland because of the range of dust sources and the lack of an adequate buffer between the existing port operations and sensitive premises. The proponent's dust emissions modelling data indicates that there would be a general reduction in the overall dust concentration in areas immediately adjacent PHPA operations at Berth 1 with negligible impact on receptors at Wedgefield Industrial Estate, Port Hedland Primary School and Hedland Senior High School. This benefit is largely attributed to the UPBP being located further away from Port Hedland and it being a purpose-built facility with dust attenuating design enhancements. The EPA notes that this may include further design and structural improvements to this proposal over time, if determined necessary through licensing processes, to achieve an improvement in air quality in the long term. In view of this the EPA considers that the proposed dust management for the proposal is appropriate and will lead to an improvement in the local air quality. The EPA considers that dust will be most effectively managed under Part V EP Act licensing rather than applying conditions on this proposal under Part IV of the EP Act. Licensing allows for the continual review of dust management for all facilities in the affected area that generate dust and annual review of licence conditions will provide greater responsiveness and flexibility in developing actions to respond to contemporary monitoring information.

Similarly for noise there is long standing issue of non-compliance with assigned noise levels in Port Hedland. Modelling conducted by PHPA predicts that the noise emissions from both the UPBP and the future PHPA port operations in Port Hedland, though exceeding the acceptable noise standard, will generally be lower than if the UPBP is not constructed due to the noise source being relocated away from the residential area of the township. In addition to this, re-routing the large trucks away from the west end of the town will also see a significant reduction in noise levels. The re-routing of trucks may result in some exceedances in noise levels for a small number of properties in South Hedland and caretaker properties in the Wedgefield Industrial Estate. The proponent is committed to instituting noise control treatments to affected dwellings.

The EPA has therefore concluded that the proposal can be managed to meet the EPA's environmental objectives, provided that there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the construction of a new ship berth and stockpile facility located at Utah Point, Port Hedland Western Australia.
2. That the Minister considers the report on the key environmental factors and principles as set out in Section 3;

3. That the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 4, and summarised in Section 4, including the proponent's commitments; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 4 of this report.
5. That the Minister considers the matters raised in 'Other Advice' with the Ministers for Planning, Transport and State Development.

Appendix 1

List of submitters

Organisations:

Department of Environment and Conservation (DEC).	Industry Regulation – Pilbara Region.
Department of Environment and Conservation (DEC).	Noise Branch.
Department of Environment and Conservation (DEC).	Air Quality Branch.
Department of Environment and Conservation (DEC).	Environmental Management Branch.
Department for Planning and Infrastructure (DPI).	Perth.
Department of Water (DoW).	Pilbara Region.
Department of Health (DoH).	Perth.
Department of Industry and Resources (DOIR).	Perth.

Individuals:

None Received.

Appendix 2

References

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EPA (2004), *Benthic Primary Producer Habitat Protection for Western Australia's Marine Environment,* Environmental Protection Authority Guidance Statement No. 29, June 2004.

EPA (2008a), Dredging at Finucane Island, BHP Billiton RGP5 Project, Port Hedland. Environmental Protection Authority Report 1304, November 2008.

EPA (2008b), *Environmental Guidance for Planning and Development,* Environmental Protection Authority Guidance Statement No. 33, May 2008.

EPA (2008c), *Guidance Statement for Protection of Tropical Arid Zone Mangroves Along the Pilbara Coastline*, Environmental Protection Authority Guidance Statement No. 1, April 2001.

Perez L, Tobias A, Querol X, et al. (2008) Course Particles from Saharan dust and daily mortality. Epidemiology 19: 800-807

Pitts, O. (2000), "Fugitive PM10 Emission Factors", *Conference Proceedings of the 15th International Clean Air & Environmental Conference*, 26th-30th November 2000, Sydney, Australia.

Semeniuk (2007), (V & C Research Group), *The Mangroves of Utah Point, Port Hedland.* Prepared for Sinclair Knight Merz and Port Hedland Port Authority.

Sinclair Knight Merz (SKM) (2008), *Utah Point Berth Project Public Environmental Review,* Port Hedland Port Authority.

Appendix 3

Table of Environmental Factors

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
BIOPHYSICAL			
Terrestrial Flora and Vegetation	There are three terrestrial vegetation types (excl. mangroves) within the proposed development area and the vegetation is generally highly disturbed and weedy. No Declared Rare Flora have been recorded in the proposed development area and one Priority 3 species *Bulbostylis burbidgeae* is recorded close to the Finucane Island access road. The proposed level of clearing of native vegetation is low and is predominately in areas that have been disturbed previously and is in relatively poor condition.	**DEC Environmental Management Branch** It is recommended that a risk assessment for potential impacts on flora is required to support the proposed location for the borrow pits. **Proponents Response** The fill requirements are to be sourced from dredge spoil. If this is unavailable, the proposed borrow pits will be utilised. Previous flora and fauna surveys undertaken for the UPBP did include the proposed borrow pit locations (refer to Appendix E). No priority flora species were identified within the proposed borrow pit locations	The construction and operation of the UPBP will not significantly impact upon the conservation status of flora or vegetation communities. A Weed Hygiene and Management Plan will be prepared in consultation with the DEC prior to the commencement of construction. and areas disturbed by construction activities will be revegetated in accordance with a Terrestrial Flora and Vegetation Management Plan. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
Terrestrial Fauna	There are three listed Priority and six Migratory fauna species considered likely to occur in the proposed development area. The potential for adverse impacts on fauna populations exists due to habitat loss, displacement, inadvertent injury or death.	**DEC Environmental Management Branch** It is recommended that a risk assessment for potential impacts and fauna (including subterranean fauna) is required to support the proposed location for the borrow pits **Proponents Response** PHPA will investigate potential impacts to troglofauna as part of further investigations of the borrow pit locations assessing a range of key environmental factors including PASS and the suitability of soil for use as clean fill material. If potential habitats for troglofauna are identified within the proposed borrow pit locations, a Borrow Pit / Troglofauna Management Plan will be developed for the project in consultation with the DEC.	Impacts on terrestrial fauna and constituent habitats are likely to be minimal. Clearing will be kept to the minimum area necessary for safe and efficient construction and operations. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Marine Flora and Fauna	Previous dredging has considerably altered the natural depth and configuration of the harbour. Marine fauna present in the Port Hedland area include diatoms, plankton, infauna epifauna, reptiles, fish and a number of listed migratory and threatened species (e.g. the Flatback Turtle). The disturbance of marine fauna by increased lighting, shipping movements and the introduction of marine pest species is an issue for the entire Port Hedland harbor.	**DEC Environmental Management Branch** Marine turtles are listed as specially protected (threatened) fauna under the *Wildlife Conservation Act 1950*, the turtle management plan for the Utah Point Berth Project should be prepared in consultation with and to the satisfaction of DEC. The turtle management plan should be properly integrated with other turtle conservation programs in the region and should include detail on the monitoring program/s and research initiatives that the proponent will implement and/or support **Proponents Response** PHPA will consult with the DEC in the development of the final Turtle Management Plan (TMP). The final TMP will detail the proposed monitoring and research initiatives to be undertaken (discussed and approved by the DEC). The Framework TMP provided in Appendix K gives an outline of monitoring/research initiatives that will be supported and/or implemented by PHPA.	Minimal impacts on marine fauna are expected as a result of the proposal. Marine Water Quality and Turtle Management Plans will be implemented detailing measures for preventing impacts to the marine environment and procedures and protocols to be followed in the event of contamination occurring. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
Mangroves	Mangroves are the dominant marine flora and/or Benthic Primary Producer Habitat (BPPH) within the harbour. Loss of 18.7 ha of mangroves, including 1.8 ha of closed canopy mangroves.	**DEC Environmental Management Branch** EPA Guidance Statements No. 1 and No. 29 identify the EPA's expectation that proponents should minimise impacts on mangroves and depended habitats to a minimum practical level. Site choice for stockyards needs to be justified. The proponent should investigate and address the avoidance, minimisation, mitigation and management of both direct and indirect impacts on mangrove communities. **Proponents Response** The UPBP has been specifically designed to avoid and minimise mangrove losses, in particular, closed canopy mangroves. There is little indirect impact anticipated on the mangrove communities that are in close proximity to the proposal.	**CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Hydrology, Surface and Groundwater	The proposed development site is located in the Port Hedland Coast Basin within coastal plain alluvial deposits. Alteration of surface drainage networks and flow pathways will occur as part of the proposal.	**Department of Water** Points to be incorporated into the Surface and Groundwater Management Plan (SGMP): • a water balance analysis for the tonnages proposed; • a summary of the water delivery and recycling infrastructure including metering and measurement capacity by location and water use activity; • estimates of the efficiency returns from water recycling activities; • a management system that shows how monitoring activities are linked to efficiency targets and improvement plans so that continuous improvement can occur; • schedules for review of the Plan and Water Balance; • a clear strategy for continuous improvement in water use efficiency; and • a reporting commitment to provide this information to Government The use of the industrial area runoff for wharf and other elements wash down is of concern. It is not clear how potentially contaminated water will be treated, sampled, monitored and regulated to ensure that reuse does not present a risk to public health. **Proponents Response** Water quality in the wharf settlement pond and the recirculation pond from runoff from the wharf and stockyards will be regularly monitored to ensure that water collected is of sufficient quality for reuse and/or in an extreme storm event meets specified water quality discharge criteria. Water suitable for reuse in dust suppression will be stored in tanks which will be regularly monitored in reference to ANZECC water quality guidelines. Water collected will be supplemented with potable water as necessary to comply with ANZECC guidelines and/or will be treated in a wastewater treatment plant. The proposed wastewater treatment plant will be licensed under Part V of the *Environmental Protection Act 1986*.	No adverse impacts are expected for surface and groundwater as a result of the proposal. The Stockyards will be purposely constructed to allow for no infiltration of surface water within potential risk areas to groundwater to prevent contamination. Contaminant and Groundwater Management Plans will be implemented for the proposal and the proposed wastewater treatment plant will be licensed under Part V of the *Environmental Protection Act 1986*. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Landforms, Geology and Soils	Landscape of tidal flats featuring bare sand, mangrove associations, salt tolerant shrubs and grasses. The location for stockyards is a limestone outcrop surrounded by mangrove muds. The Proposed stockyard site is susceptible to tidal inundation Minimal disturbance of the soil is anticipated as construction of the stockyards involves mainly filling. There is some potential for the disturbance of PASS.		The proposed area for the stockyards is centered on a limestone outcrop that is sparsely covered with vegetation. An Acid Sulfate Soil Management Plan will be developed in consultation with the DEC, should disturbance of PASS be deemed necessary. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
POLLUTION			
Air Quality	The Pilbara is a naturally dusty environment and background levels of dust often exceed the NEPM PM10 standard of 50 µg/m3 During construction there is potential for generation of dust during earthworks and vehicle movement on unsealed areas. Operation of the UPBP is likely to generate dust from uploading, stacking, reclaiming, conveyor transfers, ship loading and wind action on stockpiles. In addition to this, the transport of export materials to the site is a potentially dusty operation.	**DEC Air Quality Branch & Department of Health** • The draft PER did not investigate the impact of NO_X and SO_2 emissions from increased shipping and road transport. • Background particulate matter was an omission in the modeling that was undertaken for the proposal. • Operational monitoring locations need to be determined and trigger level dust abatement measures need to be assigned. The proponent also needs to justify a level of particulate matter in light of the fact that NEPM levels are already being exceeded in the area. **Proponents Response** NO_X and SO_2 emissions from increased shipping and road transport have been considered as part of the proposal as have the potential cumulative impacts of dust level increases by the construction of UPBP.	**CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Noise	The ambient noise environment in Port Hedland is largely dominated by port operations. Assigned noise levels are already exceeded at noise sensitive receptors in the West End district of Port Hedland. The construction of UPBP will result in generation of construction noise from earthworks, piling, laying of site drainage and internal roads. Furthermore, traffic noise from vehicle movement onsite and on-route to the UPBP development area has the potential to be a factor. During the operation of UPBP the generation of operational (industrial) noise from front end loaders, hoppers, conveyors, ship loading, and low speed truck movements also have the potential to add to the overall noise levels within the harbour area.	**Dec Noise Branch** • Predicted that noise emissions from the proposed UPBP and from the other public berths operated by the PHPA will not be able to comply with the assigned noise levels. • Increase in traffic noise for residents of Wedgefield. **Proponents Response** Achieving the Assigned Noise Levels due to the Utah Point/PHPA development together is not practically possible with current technology. However, achieving the Assigned Noise Level at Utah Point (UPBP) is possible with noise control measures. A Noise Improvement Plan will be implemented over the next 10 years to implement noise control on existing operations at PHPA-operated facilities and this is predicted to result in a noise reduction of 1-2 dBA in total emitted noise level.	Construction noise is not anticipated to have a significant impact due to high existing background noise levels and the implementation of suitable administrative and engineering control methods. **OPERATIONAL NOISE IS CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR**
Waste Management	Significant volumes of waste are generated by industrial activities within the Port Hedland area and as yet there is no recycling program operates in the Port Hedland area.		Minimal impacts are expected as a result of waste produced during construction and operations of the proposed development A Waste Management Plan will developed for the construction and operational phases of the proposal. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Marine Environmental Quality	The constant movement of ships, highly modified bathymetry, large tidal range and presence of large volumes of silt and mud in the harbour result in a high level of turbidity. Moderately elevated levels of copper and zinc occur in the harbour, yet, no organic chemicals have been detected in the harbour and dissolved concentrations of other metals approach those found in the open ocean.		Minimal impacts on marine environmental quality are expected as a result of the proposal. Marine Water Quality and Containment Management Plans will be implemented detailing measures for preventing impacts to the marine environment and procedures and protocols to be followed in the event of contaminant breaches. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
Traffic	Existing traffic concerns in the Port Hedland area include traffic congestion and traffic delays at railway crossings. Peak hours of traffic volume occur between 6-7 am and 4-5 pm. Potential for traffic delays and road closures during construction.		PHPA will liaise with Main Roads Western Australia and other relevant agencies to improve traffic management. The proposal will see a reduction in the amount of trucks driving through the west end of Port Hedland. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Contaminated Site related issues	The site is an intertidal area, which becomes inundated with sea water at regular intervals. There is evidence of site contamination and given the site has not been subject to development, the levels of contaminants found are deemed to originate offsite or are naturally occurring within the harbour area. The potential primary sources are likely to be up-gradient since the site is affected by intertidal conditions.	**Government Agency and Public Comments** It is likely that this site will be classified under the *Contaminated Sites Act 2003* (the Act) as *possibly contaminated – investigation required*, pending the results of further investigations. In accordance with the *Contaminated Sites Regulations 2004*, 31(1)(c), any contamination investigations of the Site will need to be overseen by an accredited contaminated sites auditor appointed under the Act. **Proponents Response** The facilities will be located, designed and constructed in a manner to address potential environmental impacts in order to minimise these impacts. The detailed design of these facilities will address environmental management objectives consistent with applicable legislation. The construction activities will be addressed in a CEMP and tender documents will specify design elements to be incorporated into the infrastructure that will minimise environmental impacts.	The proposal will not create new pathways for contamination to exist**.** Construction of the proposed stockyards will not require disturbance of existing soils. Construction will consist of a layer of clean fill across the whole site, with a layer of impervious geosynthethic material in some areas Adequately addressed under Contaminated Sites Act 2003 and supporting regulations. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR**
SOCIAL SURROUNDINGS			
Aboriginal Heritage	Previous surveys have identified an Aboriginal heritage site, a shell midden named "Sounness Drive Camp" within the proposed development area. Ongoing investigations are being undertaken to investigate Aboriginal heritage concerns.		Efforts will be made to avoid the disturbance of culturally significant sites as far as practicable. Where disturbance is unavoidable PHPA will seek permission under Section 18 of the Aboriginal Heritage Act to retrieve, relocate or, where this is not possible, to disturb Aboriginal heritage material. **NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
European Heritage	No places of European heritage significance are located within or in close proximity to the proposed development site.		**NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
Recreational Activity	Coastal recreational pursuits, such as fishing, are popular in the Port Hedland region however this proposal is not anticipated to have an adverse effect on this factor.		**NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**

Preliminary Environmental Factors	Proposal Characteristics	Government Agency and Public Comments	Identification of Key Environmental Factors
Visual Amenity	The visual landscape of the Port Hedland area is considerably influenced by existing port facilities and operations.		**NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**
Risk and Safety	Risk and safety aspects associated with port operations are particularly important in Port Hedland.		**NOT CONSIDERED TO BE A KEY ENVIRONMENTAL FACTOR.**

PRINCIPLES		
Principle	**Relevant Yes/No**	**If yes, Consideration**
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.* *In application of this precautionary principle, decisions should be guided by –* *(1) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(2) an assessment of the risk-weighted consequences of various options.*		
	No	Detailed investigations have been undertaken of the existing environment and in assessing environmental impacts, particularly for mangroves, terrestrial flora and fauna, noise, air and traffic. Management plans for key factors will be implemented including Surface and Groundwater, Contaminant, Turtle, Air Quality, Noise, Traffic and Aboriginal Heritage Management Plans.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*		
	No	The UPBP has been designed and will be constructed to minimise environmental impacts. Dust emissions and impacts on the local Port Hedland community will be minimised through improved design and handling methods and the movement of operations away from sensitive receptors.
3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*		
	Yes	The UPBP has been designed and will be constructed to minimise mangrove loss. Clearing and disturbance of vegetation will be kept to the minimum area necessary for safe and efficient operations. No clearing activities are planned to occur within the vicinity of significant flora species (*Bulbostylis burbidgeae*) (Priority 3). Offset options to compensate for past and future mangrove loss will be investigated at a strategic level as part of the Ultimate Development Plan for the harbour.

PRINCIPLES		
Principle	**Relevant Yes/No**	**If yes, Consideration**
4. Principles relating to improved valuation, pricing and incentive mechanisms *a. Environmental factors should be included in the valuation of assets and services.* *b. The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *c. The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.* *d. Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximize benefits and/or minimize costs to develop their own solution and responses to environmental problems.*		
	No	
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimize the generation of waste and its discharge into the environment.*		
	Yes	Measures to minimise the generation of waste during construction and operations will be incorporated into detailed design and planning prior to the commencement of works. The UPBP will be purposely designed to minimise water wastage and promote water recycling and reuse. Surface runoff will be collected within the stockyards, settlement ponds and truck wash and treated as applicable for reuse.

Appendix 4

Recommended Environmental Conditions

Statement No.

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE *ENVIRONMENTAL PROTECTION ACT 1986)*

UTAH POINT BERTH PROJECT – PORT HEDLAND

Proposal: The proposal is to construct and operate a new shipping berth and ore stockpile facility located at Utah Point in Port Hedland.

The proposal is further documented in schedule 1 of this statement.

Proponent: Port Hedland Port Authority

Proponent Address: PO Box 2, Port Hedland 6721

Assessment Number: 1662

Report of the Environmental Protection Authority: Report 1311

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as assessed by Environmental Protection Authority and described in Schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer (CEO) of the Department of Environment and Conservation of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO of the Department of Environment and Conservation with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall prepare and maintain a compliance assessment plan to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation.

4-2 The proponent shall submit to the Chief Executive Officer of the Department of Environment and Conservation, the compliance assessment plan required by condition 4-1 at least 6 months prior to the first compliance report required by condition 4-6. The compliance assessment plan shall indicate:

1 the frequency of compliance reporting;

2 the approach and timing of compliance assessments;

3 the retention of compliance assessments;

4 reporting of potential non-compliances and corrective actions taken;

5 the table of contents of compliance reports; and

6 public availability of compliance reports.

4-3 The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the compliance assessment plan required by condition 4-1 and shall make those reports available when requested by the Chief Executive Officer of the Department of Environment and Conservation.

4-5 The proponent shall advise the Chief Executive Officer of the Department of Environment and Conservation of any potential non-compliance as soon as practicable.

4-6 The proponent shall submit a compliance assessment report annually from the date of issue of this Implementation Statement addressing the previous twelve month period or other period as agreed by the Chief Executive Officer of the Department of Environment and Conservation. The compliance assessment report shall:

1 be endorsed by the proponent’s Managing Director or a person, approved in writing by the Department of Environment and Conservation, delegated to sign on the Managing Director’s behalf;

2 include a statement as to whether the proponent has complied with the conditions;

3 identify all potential non-compliances and describe corrective and preventative actions taken;

4 be made publicly available in accordance with the approved compliance assessment plan; and

5 indicate any proposed changes to the compliance assessment plan required by condition 4-1.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO of the Department of Environment and Conservation a Performance Review Report at the conclusion of the first, second, fourth and sixth, years after the start of implementation and then, at such intervals as the CEO of the Department of Environment and Conservation may regard as reasonable, which addresses:

1 the major environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;

2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and

3 significant improvements gained in environmental management which could be applied to this and other similar projects.

Procedures

1. Where a condition states “to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment and Conservation for the preparation of written notice to the proponent.

2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.

3. Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment and Conservation.

Notes

1. The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.

2. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986.*

Schedule 1

The Proposal (Assessment No. 1662)

The UPBP proposal consists of:

- dedicated multi-user access road (7 km) to Finucane Island including causeway widening over West Creek (Figure: 3);
- stockyard area (19 ha) on Stanley Point, Finucane Island (Figure:1) elevated perimeter road around stockyards for right-side road train dumping;
- seawalls around perimeter road to protect from storm surge and high spring tides;
- workshops, security control room, fuel storage, offices and associated infrastructure;
- clearing of 18.7 hectares of mangroves (including 1.8 hectares of closed canopy mangroves) (Figure: 2);
- potential borrow pit areas located along the access road (Figure 3);
- power supply, potable water, dust suppression, fire protection, settlement ponds and miscellaneous services;
- materials conveying system including transfer towers and sample station;
- mobile load-out hopper trains on rails over a stockyard central conveyor;
- travelling Shiploader; and
- wharf designed to accommodate Panamax and small Cape size vessels, including associated facilities and services

at Utah Point in the Port Hedland Harbour.

The main characteristics of the proposal are summarised in Table 1 below. A detailed description of the proposal is provided in Section 4 of the project referral document, *Port Hedland Port Authority, Utah Pont Berth Project*, Public Environmental Review, prepared by Sinclair Knight Merz, Perth, Western Australia (June 2008).

Table 1: Summary of Key Proposal Characteristics

Element	Description
Total area of proposed disturbance	• Maximum total area to be disturbed is approx. 87 ha including (Figure 1 and 3); • access road approx. 35 ha comprised of two sealed 3.5 m lanes with a 1 metre sealed shoulder and a 1 m unsealed shoulder; • stockyard area approx of 19 ha (approximately • 1 000 m long and 200 m wide, 10 m wide elevated perimeter ring road constructed at 11.5 m Chart datum); • wharf development approx. 3 ha; • connecting area wharf to stockyards approx. 4.5 ha; and • potential borrow and spoil areas approx. 25 ha.
Mangrove habitat protection	• Total mangrove clearance approx. 18.7 ha (including approx 1.8 ha of closed canopy mangroves) as depicted in (Figure 2).

Element	Description
Dust suppression	• stackers are to be fitted with boom water spray heads to minimise dust emissions; and • shiploading is to be conducted with a 'Cleveland Cascading Chute' (or equivalent).
Noise suppression	• the use of recognised 'best practice' enclosed drives for conveyors, stackers and ship loaders; and; and • the provision of specific acoustic treatments (to any residences in Wedgefield Industrial Estate that are identified as being adversely affected by increased noise levels from ore trucks en-route to the UPBP)
Stormwater management	• construction of a seawall at 11.5 meters Chart Datum to isolate the stockyard area from the mangrove systems and to protect facility from storm surge and high tides; • stockyard construction is to be constructed to finished level 11.5 m Chart datum also; • internal drainage system designed to retain all runoff on-site and have the capacity to deal with cyclonic conditions; • construction of a lined recirculation water pond that that will have a storage capacity of approximately 50 000 m^3 ; and • installation of a impervious 'geotechnical barrier' 500 – 700mm beneath the surface of the stockyards to prevent infiltration of potential contaminants to groundwater.

Figures:

Figure 1: Stockyard Design and Water Catchment Locations.
Figure 2: Stockyard Design in relation to Mangrove Assemblages At The UPBP Site.
Figure 3: Causeway Design and Potential Borrow-pit Locations.

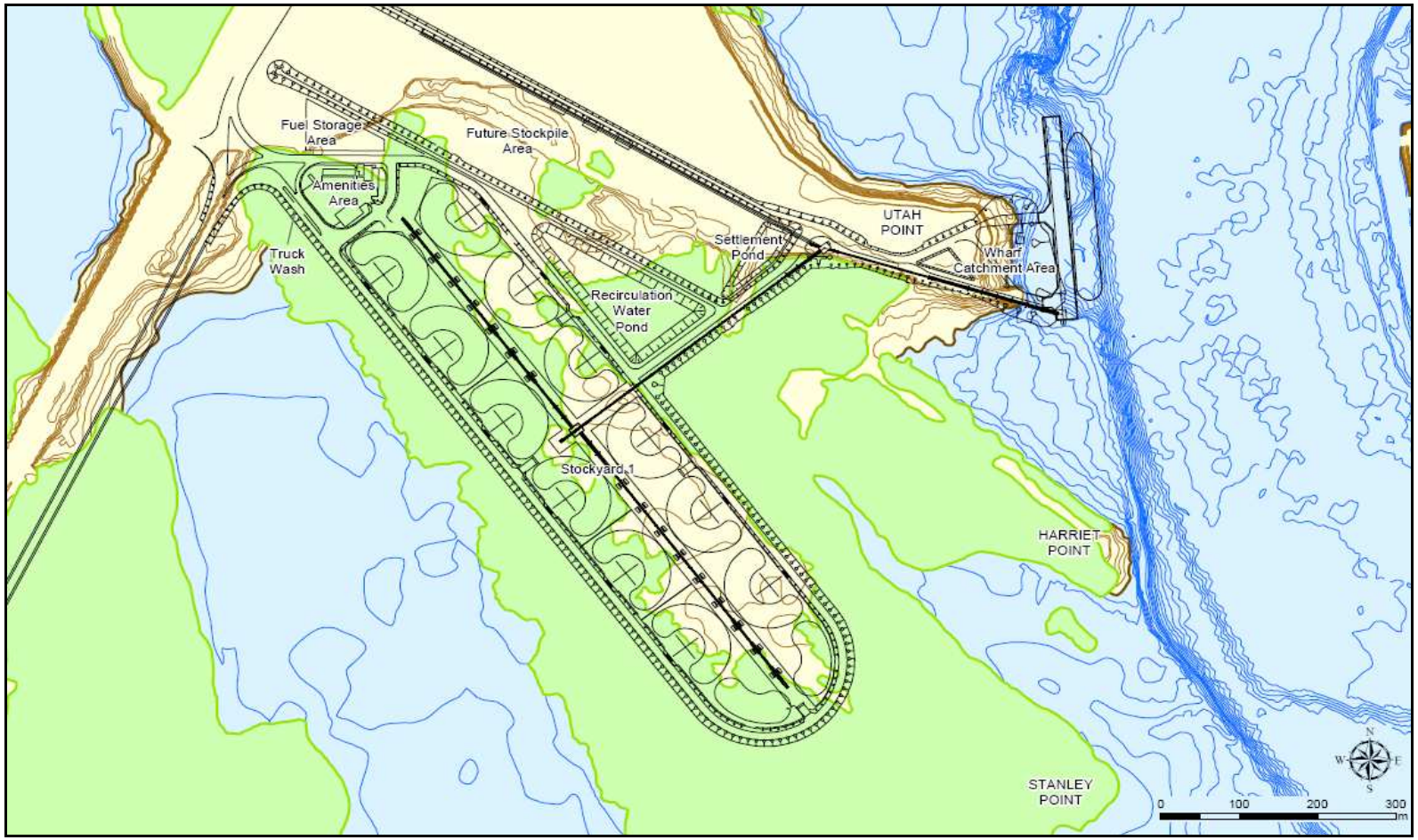

Figure 1: Stockyard Design and Water Catchment Locations

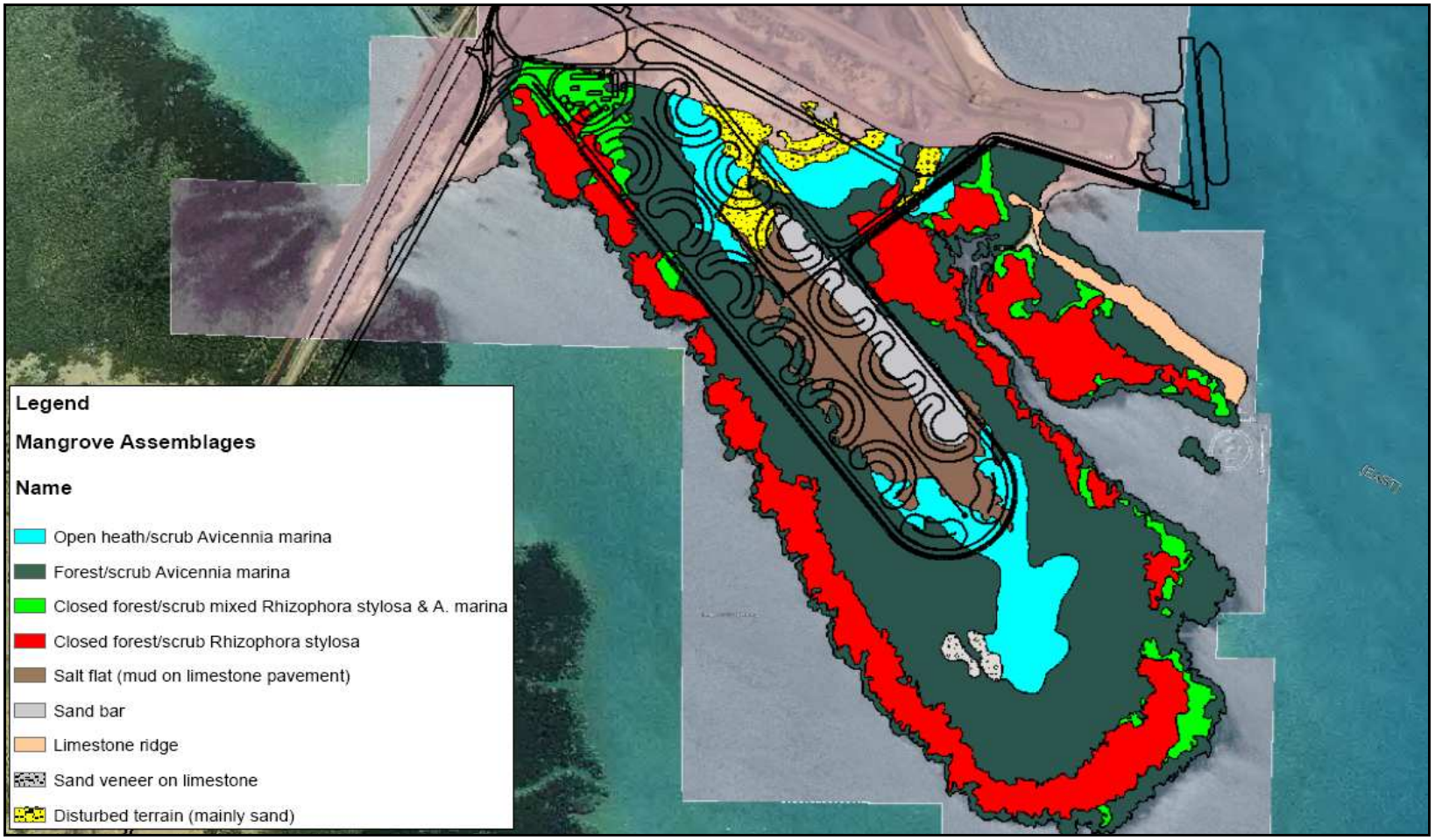

Figure 2: Stockyard Design in relation to Mangrove Assemblages At The UPBP Site

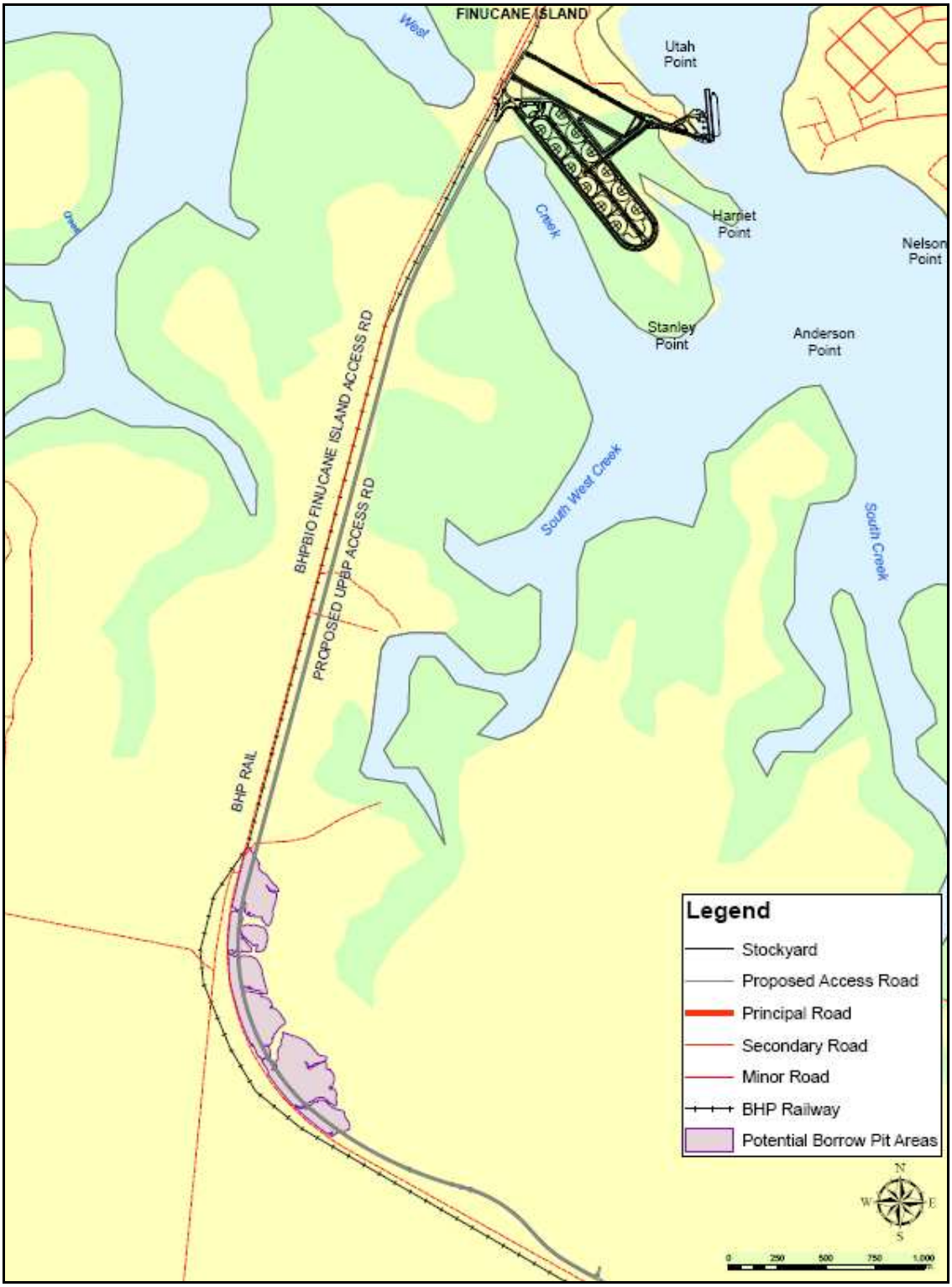

Figure 3: Causeway Design and Potential Borrow-pit Locations

Appendix 5

Summary of Submissions and
Proponent's Response to Submissions