

EXECUTIVE SUMMARY

Background

BHP Billiton Iron Ore is seeking parallel approval under the State *Environmental Protection Act 1986* (EP Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), to undertake a dredging program within the Port Hedland Inner Harbour, adjacent to existing facilities at Nelson Point.

This Environmental Referral Document (ERD), known as the Nelson Point Dredging proposal, encompasses the dredging and dredge spoil management component of BHP Billiton Iron Ore's proposed Rapid Growth Project 6 (RGP6) expansion.

Project Description

The proposal involves the dredging of approximately 6.0 Mm³ of material for two new berth pockets, extensions to the existing departure channel and swing basin at Nelson Point, to accommodate vessels of approximately 250,000 DWT (dead weight tonnes).

Dredged material is proposed to be managed at two dredge material management areas (DMMA) depending on a number of factors including its potential to generate acid sulphate soils, available dredge types and access (depth) requirements for dredge equipment.

Up to 2.7 Mm³ of material including potential acid sulphate soil (PASS) material will be dredged using a Backacter Dredge and disposed offshore to Spoil Ground One using split hopper barges. Up to 4.0 Mm³ of dredged material will be dredged using a Cutter Suction Dredge and pumped onshore to DMMA H.

The key characteristics of the Nelson Point Dredging proposal are outlined below in **Table ES.1**

Table ES.1 – Key Project Characteristics

Element	Description
Duration of dredging	Offshore disposal: Approximately 68 weeks (based on 2.7 Mm ³) Onshore disposal: Approximately 46 weeks (based on 4.0 Mm ³)
Area of marine disturbance for dredging	Not more than 60 ha at Nelson Point (south)
Volume of material to be dredged	Approximately 6.0 Mm ³ (including allowance for over-dredging)
Offshore disposal of dredged material	Not more than 2.7 Mm ³ to Spoil Ground One
Onshore disposal of dredged material	Not more than 4.0 Mm ³ to DMMA H (excluding bulking*)
Area of land disturbance for DMMA H	Construction footprint: Not more than 204 ha Perimeter bund height: Not more than +9.0 m AHD (Australian Height Datum)
Area of mangrove clearance	Closed Canopy Mangroves: Not more than 0.22 ha Scattered Mangroves: Not more than 3.78 ha

* Increase in volume due to bulking is addressed in **Section 2.5.2**.

Environmental Management

The proposal, as described in this ERD, has been developed to avoid, minimise, manage and mitigate environmental impacts. In determining the preferred options for management of the dredged material, an option assessment was completed based on social, environmental and economic criteria to ensure the project achieved its over-arching principles of biodiversity and sustainability. Details of the site selection process are provided in **Section 2.3**.

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In addition, some decisions which significantly reduced both the environmental and social impacts are as follows:

- Design of the dredging footprint configuration to minimise the dredging volume as far as reasonably practicable whilst allowing safe navigation of shipping vessels.
- Site selection studies undertaken to determine the location of the onshore DMMA, with an emphasis on avoiding disturbance to areas of high environmental value (i.e. mangroves) where possible.
- Completion of environmental field surveys early in the pre-feasibility phase of the project to guide design and configuration of DMMA H and minimise clearance of mangroves. It is predicted that approximately 4.0 ha of mangroves will be cleared during the implementation of this proposal, with 0.22 ha relating to higher value closed canopy mangroves.
- Disposal of PASS material offshore to ensure that ASS does not become an environmental legacy in the future. It is also recognised that the appropriate management of non-PASS material onshore represents a valuable commodity for use in future developments within the Port Hedland area. This is made possible to some extent by the segregation and separate disposal of PASS material.
- Selection of Spoil Ground One as the preferred location for offshore disposal of dredged material due to factors including its location adjacent to an existing disturbed area (i.e. Spoil Ground 'I'), the lack of benthic primary producer habitat within close proximity and the ability to align with PHPA operational requirements.

BHP Billiton Iron Ore has adopted a qualitative risk-based approach to determine the relevant environmental and social factors for the Nelson Point Dredging proposal. The over-arching principles of sustainability and biodiversity have been considered within the context of this proposal and have been incorporated into the assessment of the identified environmental factors. These environmental and social factors have been identified through existing information, findings of investigative studies, consultation with relevant stakeholders relevant stakeholders and experience gained from similar projects being undertaken within the Port Hedland Harbour.

A preliminary impact assessment was used to categorise the inherent risk of the environment factors as critical, major, moderate, minor or low depending upon the potential significance of the impacts and the required management. Inherent risk is determined as the risk without consideration of any management controls. There are no environmental or social factors identified with critical or major inherent risks.

This ERD provides a detailed assessment of the moderate risk factors as they are considered to be 'key' to the project.

The key environmental factors have been identified as:

- marine water quality;
- marine habitat;
- acid sulphate soils; and
- land use.

For each of the key factors, the ERD discusses the objective and potential impacts. Subsequent assessment, as detailed in **Section 8**, demonstrates that through incorporation of management controls the potential impacts can be managed so that residual risk is minimised.

Management plans have been developed for each of the key environmental factors, outlining the management controls that will be implemented to ensure potential impacts are minimised. These plans include:

- Acid Sulphate Soil Management Plan (**Appendix B2**);
- Dredging Management Plan (**Appendix B3**);

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- Mangrove Management Plan (**Appendix B4**); and
- Land Use Management Plan (**Appendix B5**).

In the event that the project is considered to be environmentally acceptable, these management plans will be amended to incorporate any conditions of approval or additional project commitments.

The minor and low environmental risk factors are assessed as 'relevant' factors within the ERD (**Section 9**). These factors are considered to a lesser extent as the key factors.

The relevant environmental factors have been identified as:

- marine fauna;
- marine pest species;
- coastal processes;
- hydrology;
- terrestrial flora and fauna;
- construction dust;
- construction noise;
- cultural heritage;
- recreational areas;
- visual amenity;
- hydrocarbons and hazardous wastes; and
- solid and liquid waste management.

This document describes the impacts of the proposal, and for each factor discusses the:

- objective for that factor;
- relevant guidance material;
- potential impacts;
- management of impacts; and
- outcome.

For all factors assessed, it is considered that with the implementation of the proposed management and mitigation the EPA objectives can be met and environmental impacts will be minimised to 'As Low as Reasonably Practicable' (ALARP). BHP Billiton Iron Ore's environmental commitments to achieve this are outlined for each factor in **Sections 8** and **9**.

Table ES.2 summarises BHP Billiton Iron Ore's evaluation of each the environmental factors, potential environmental impacts and discusses proposed management actions to reduce the environmental risk.

Table ES.2 – Potential Environmental Impacts and Management

	Over-arching Principles
	Key Environmental Factor
	Other Relevant Environmental Factor

Factor	Environmental Objective	Potential Impacts	Proposed Management	Relevant Guidance	Outcome (Residual Risk)
Over-arching Principles					
Biodiversity	To minimise adverse impacts on biological diversity, comprising the different plants and animals and the ecosystem they form, at the levels of genetic diversity, species diversity and ecosystem diversity.	<ul style="list-style-type: none"> Reduced distribution or geographical extent in local and regional context; Reduced species and ecosystem diversity; Cumulative loss of vegetation communities, flora and fauna species and habitats within the region; Cumulative loss of marine benthic primary producer habitat within the region; and Invasive species (e.g. marine pest species). 	<ul style="list-style-type: none"> Avoid disturbance of critical habitat/s; Use of endemic or suitable species in rehabilitation where substrates can be re-established to support these species; and Maintenance of biodiversity within the project area will be managed in accordance with BHP Billiton Iron Ore's standard operating practices construction Environmental Management Plan (EMP) (Appendix B1). 	<ul style="list-style-type: none"> BHP Billiton Iron Ore Biodiversity Strategy; EPA Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection (EPA 2002b); EPA Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA 2004e); and EPA Guidance Statement No. 56: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia (EPA 2004e). 	N/A
Sustainability	To ensure, as far as practicable, that the proposal meets or is consistent with the sustainability principles in the National Strategy for Ecologically Sustainable Development (Ecologically Sustainable Development Steering Committee 1992).	Poor design and management of the project may impact on important economic, environment and social attributes on local and regional scales.	Project design and management will consider sustainability principles outlined in the National Strategy for Ecologically Sustainable Development and the WA State Sustainability Strategy.	<ul style="list-style-type: none"> BHP Billiton Sustainable Development Policy 2005 (BHP Billiton Iron Ore 2005); EPA Guidance Statement No. 55: Implementing Best Practice in Proposals Submitted to the Environmental Impact Assessment Process (EPA 2003); Hope for the future: The Western Australian State Sustainability Strategy (Govt. WA 2003); and National Strategy for Ecologically Sustainable Development (Ecologically Sustainable Development Steering Committee 1992). 	N/A
Biophysical – Marine					
Marine Water Quality	The environmental objective for marine water quality is to protect the environmental values of the Port including: <ul style="list-style-type: none"> maintaining the structure and functions of marine ecosystems; ensuring water quality is safe for recreational activities; ensuring water quality is sufficient such that any seafood caught or grown in the area is of a quality safe for human consumption; and minimising the risk to the environment arising from acid sulphate soils (ASS) and dredged sediment by maintaining an acceptable water and sediment quality consistent with relevant policies and standards. 	<ul style="list-style-type: none"> Increased turbidity caused by suspended sediments released into the water column; Loss of fringing benthic primary producer habitat (BPPH) such as mangroves; Minor scouring / erosion of creek bed near the excess water discharge point; Increased sedimentation caused by particles settling out of the water column during dredging and disposal; Mobilisation and release of contaminants caused by the disturbance and relocation of sediments; Oxidation of PASS; and Changes to water quality from excess water discharge from DMMA. 	Preventative management measures to be implemented for dredging and spoil disposal activities include: <ul style="list-style-type: none"> Experienced operators will be used to ensure that the loss of turbid water from the Backacter Dredge is minimised; Overflowing of the split hopper barge while loading will be minimised; Well maintained barges will be used; Where practical, sailing routes will be planned to minimise the generation of propeller wash; Well maintained floating and land pipelines will be utilised to minimise leakage of turbid water during pumping of material to DMMA H; Management of the residence time of excess water from within DMMA H to ensure discharged water meets desired water quality standards; and Suitable controls will be used at the discharge point to control the water level and the rate of discharge. Monitoring commitments for dredging and spoil disposal	<ul style="list-style-type: none"> Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ 2000a); National Assessment Guidelines for Dredging (CA 2009); Environmental Quality Criteria Reference Document for Cockburn Sound (2003–2004) (EPA 2005); Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives (DoE 2006b); and State Water Quality Management Strategy Document No. 6 (DoE 2004b). 	Minor

Factor	Environmental Objective	Potential Impacts	Proposed Management	Relevant Guidance	Outcome (Residual Risk)
			<p>activities are described in detail in the Dredging Management Plan (DMP) (Appendix B3) and include:</p> <ul style="list-style-type: none"> fortnightly spatial monitoring of total suspended solids (TSS), dissolved trace metals and ammonia will occur during the dredging campaign; and water quality monitoring will occur at three impact sites and three reference sites and will monitor TSS, turbidity, pH, dissolved oxygen, conductivity, temperature and light (at selected sites). <p>Contingency measures have been developed based on water quality triggers, and will be implemented in the event that excess water from DMMA H does not meet prescribed standards.</p>		
<p>Marine Habitat Disturbance</p>	<p>To limit the direct loss of BPPH associated with the proposed dredging activities and the construction of DMMA H, and to ensure the protection of BPPH of the Port Hedland Harbour from indirect impacts associated with the project.</p>	<ul style="list-style-type: none"> Direct loss of intertidal BPPH caused by clearing activities for construction of DMMA H; Indirect impacts on BPPH resulting from increased TSS or sedimentation levels due to excessive turbidity caused by dredging operations and spoil disposal; and Direct impacts to subtidal BPPH associated with dredging and spoil disposal activities. 	<p><i>Mangroves</i></p> <p>Provisions to minimise direct impacts to mangroves outside the disturbance footprint include:</p> <ul style="list-style-type: none"> the disturbance area will be surveyed and delineated using coloured flagging (where practical); and clear briefings and instructions to contractors regarding the clearance procedures will be undertaken to minimise the disturbance area. <p>Management of potential water quality impacts on mangroves will be achieved in accordance with the DMP (Appendix B3), and include:</p> <ul style="list-style-type: none"> water quality monitoring; and contingency measures. <p>Dust deposition on mangroves surrounding DMMA H will be minimised through the implementation of dust suppression and management techniques.</p> <p>Additional monitoring to assist in the management of potential impacts on mangroves will include:</p> <ul style="list-style-type: none"> mangrove mapping; mangrove health surveys; sediment deposition monitoring within the mangrove community; and soil salinity assessment associated with the construction of DMMA H bunds. <p>Further details of the proposed management strategies are outlined in the MMP (Appendix B4).</p> <p><i>Salt Marshes and Cyanobacterial Mats</i></p> <p>A broad scale study is proposed to describe the distribution of cyanobacterial mat communities in the Port Hedland Industrial Area Management Unit.</p> <p><i>Subtidal BPPH</i></p> <p>Prior to any dredging activity, a towed video survey will be undertaken across randomly placed transects of BPPH within the harbour.</p> <p>Following dredging, another towed video survey will be undertaken to determine whether significant changes in BPP or BPPH composition have occurred as a result of dredging activities.</p> <p>If it is determined that significant changes have occurred as a result of dredging activities, annual field surveys will be undertaken for up to three years after the completion of dredging to evaluate the recovery of BPPH within the harbour.</p>	<p>EPA Guidelines of relevance to BPPH impacts and management include:</p> <ul style="list-style-type: none"> EPA Guidance Statement No. 1: Protection of Tropical Arid Zone Mangroves along the Pilbara Coastline (EPA 2001); and EPA Guidance Statement No. 29: Benthic Primary Producer Habitat Protection for Western Australia's Marine Environment (EPA 2004c). <p>Other applicable legislation and guidelines for the management of mangroves include:</p> <ul style="list-style-type: none"> Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ 2000a); and Pilbara Coastal Water Quality Consultation: Environmental Values and Environmental Quality Objectives (DoE 2006b). 	<p>Minor</p>

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Factor	Environmental Objective	Potential Impacts	Proposed Management	Relevant Guidance	Outcome (Residual Risk)
Marine Fauna	To maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through avoidance or management of adverse impacts and improvement in knowledge.	<ul style="list-style-type: none"> Disturbance to marine fauna through vessel collisions, entrapment, underwater noise and light disorientation; Reduced water quality due to discharges or spills; Potential toxicity caused by hydrocarbon spills; and Loss of mangrove habitat for marine fauna. 	The marine fauna management measures to be implemented during the dredging and spoil disposal are detailed within the DMP (Appendix B3) and include: <ul style="list-style-type: none"> Marine mammal and turtle observation procedures; Ceasing or minimising dredging and disposal activities in the event of an observation in close proximity to the operation; Limiting lighting to navigational lights and lights required for safe dredging operations; and Reporting of all incidents of injury or mortality of sea turtles or other marine mammals to the DEC and DEWHA. 	<ul style="list-style-type: none"> EPA Guidance Statement No. 1: Protection of Tropical Arid Zone Mangroves along the Pilbara Coastline (EPA 2001); EPA Guidance Statement No. 8: Environmental Noise (Draft) (EPA 2007); and Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives (DoE 2006b). 	Minor
Marine Pest Species	To minimise the risk of introduction, establishment and spread of marine pest species into and within West Australian waters as a result of the dredging, reclamation and disposal activities.	Introduction of marine pests to Port Hedland harbour as a result of dredging operations and subsequent impacts include: <ul style="list-style-type: none"> Establishment of non-indigenous marine pest species; Competition for food and space with native species; Removal of native species; Predation of native species; and Introduction of associated pests and disease. 	Implementation of the DMP (Appendix B3) including the following measures: <ul style="list-style-type: none"> All dredging vessels to be mobilised from outside Port Hedland will undergo inspection prior to the commencement of dredging to ensure that they are free of suspected introduced marine species; If suspected introduced marine species are identified during pre-mobilisation inspections, vessels will be subject to cleaning and re-inspection prior to re-mobilisation; and A vessel inspection checklist will be completed and provided to the DEC and DoF within 48 hours of arrival inspection. 	<ul style="list-style-type: none"> Australian and New Zealand Environment and Conservation Council Code of Practice for Anti-fouling and In-Water Hull Cleaning and Maintenance (ANZECC 1997); Australian Quarantine and Inspection Service (AQIS) guidelines for ballast water management (AQIS 2008); and National Introduced Marine Pest Identification System (NIMPIS) (Hewitt et al. 2002). 	Minor
Coastal Processes	To maintain the integrity and stability of the coast, seafloor and tidal creeks.	<ul style="list-style-type: none"> Alteration of coastal hydrodynamic and geomorphic processes; and Alteration of natural movement of sedimentation (erosion and deposition rates) potentially leading to enhanced erosion and alterations to the coastline. 	Designs of DMMA H and the dredging footprint have been optimised to result in minimal disturbance to coastal processes.	<ul style="list-style-type: none"> Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives (DoE 2006c). 	Minor
Biophysical – Terrestrial					
Acid Sulphate Soils	To minimise the risk to the environment resulting from acid sulphate soils and to maintain and protect water quality for existing environmental values and ecosystem function.	The primary impact associated with acid sulphate soils is the oxidation of PASS leading to the generation of acidity and potential for heavy metal release into the soil and water. This process has the potential to result in: <ul style="list-style-type: none"> Changes to groundwater quality beneath DMMA H; Changes to surface water quality from DMMA H, and subsequent changes to marine water quality in the local area; and Impacts to flora and fauna as a result of diminished water quality. Re-use options for dredged material known to contain PASS are also limited.	The Acid Sulphate Soils Management Plan (ASSMP) (Appendix B2) will be implemented to manage impacts associated with acid sulphate soils. Specific management measures include: <ul style="list-style-type: none"> Controlled transport and disposal of PASS material offshore; Monitoring controls on disposed material on shore; Isolation and covering of PASS from bund walls; and Contractor site induction/training in management of PASS. 	<ul style="list-style-type: none"> Acid Sulphate Soils Guideline Series (DoE 2006a); Acid Sulphate Soils Planning Bulletin No. 64 (WAPC 2009); Contaminated Sites Management Series Guidelines including: <ul style="list-style-type: none"> Treatment and Management of Disturbed Acid Sulphate Soil (DoE 2004a); and Dewatering Effluent and Groundwater Monitoring Guidance for Acid Sulphate Soil Areas (DoE 2006c). National Strategy for the Management of Coastal Acid Sulphate Soils (ANZECC & ARMCANZ 2000b). 	Minor
Hydrology	To maintain the quality of water so that existing and potential environmental values, including ecosystem maintenance, are protected.	Construction activities at DMMA H have the potential to cause: <ul style="list-style-type: none"> Disruption of natural surface water flows and stormwater runoff from exposed areas; Unnatural or accelerated erosion of intertidal flats surrounding DMMA H; and Increased mosquito breeding areas and incidences of mosquito borne diseases in the local community and workforces. The discharge of excess water from DMMA H has the potential to cause minor scouring/erosion of creek bed near excess water discharge point.	<ul style="list-style-type: none"> DMMA H has been designed to avoid major drainage channels ; Installation of appropriate drainage controls to manage erosion and divert stormwater; Prevention of ponding of water for prolonged periods of time; Visual inspection of DMMA H and associated settlement pond for mosquitoes/larvae; Liaison with ToPH, DoH and other parties with regard to mosquito management programs and training; Reporting of all incidences of mosquito borne diseases; Excess water from DMMA H will be discharged only on an as needs basis; Flow rates from DMMA H will be controlled; and Scour protection will be used in the overflow channel at the DMMA H discharge point. 	<ul style="list-style-type: none"> Environmental Water Provisions Policy for Western Australia: Statewide Policy No. 5 (WRC 2000). 	Minor

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Terrestrial Flora and Fauna	To maintain abundance, diversity, geographic distribution and productivity of flora and fauna at species levels through avoidance or management of adverse impacts and improvement in knowledge.	<ul style="list-style-type: none"> • Direct loss of flora and vegetation communities within DMMA H; • Direct loss of priority flora (<i>Tephrosia rosea</i> var. <i>venulosa</i> and <i>Pterocaulon</i> sp. A Kimberley Flora); • Modification to and loss of fauna habitat; • Injury and mortality of fauna from collisions with moving vehicles/equipment; • Introduction and/or spread of weed species may result in increased competition with native species; and • Reduced health of terrestrial fauna habitat (e.g. dust deposition). 	<ul style="list-style-type: none"> • Clearing of vegetation will be kept to the minimum required for safe and efficient construction of DMMA H; • Education on flora and fauna for personnel involved in clearing activities; • Implementation of weed hygiene processes; and • Topsoil from areas where <i>Tephrosia rosea</i> var. <i>venulosa</i> will be removed and stockpiled for reuse during rehabilitation. 	<ul style="list-style-type: none"> • EPA Position Statement No. 2: Environmental Protection of Native Vegetation in WA (2000b); • EPA Position Statement No. 3: Terrestrial Biological Surveys as an Element of Biodiversity Protection (2002b); • EPA Guidance Statement No. 51: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia (EPA 2004e); and • EPA Guidance Statement No. 56: Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia (EPA 2004f). 	Minor
Pollution Management					
Construction Dust	To ensure that emissions do not adversely affect environment values or the health, welfare and amenity of people and land uses by meeting statutory requirements and acceptable standards.	<ul style="list-style-type: none"> • Impact on health and amenity; • Deterioration of local air quality; and • Degradation to flora, fauna habitats due to smothering. 	Particular measures to reduce ambient dust levels during construction include: <ul style="list-style-type: none"> • An induction program will ensure that all employees are made aware of the need to minimise dust generation; • Regular watering of unsealed roads, exposed surfaces and active construction areas; • Restriction of vehicle movements and vehicle speeds to reduce dust emissions; • Use of environmentally safe dust suppressants where applicable; and • Reporting of any community complaints regarding dust levels. 	<ul style="list-style-type: none"> • National Environment Protection Goals as defined in the National Environment Protection (Ambient Air Quality) Measure (NEPM) (EPHC 2003); and • EPA Guidance Statement No. 18 Prevention of Air Quality Impacts from Land Development Sites (EPA 2000c). 	Minor
Construction Noise	To protect the amenity of nearby residents from noise impacts resulting from activities associated with the proposal by ensuring the noise levels meet statutory requirements and acceptable standards.	Reduced amenity for residents at sensitive receptors.	Noise impacts on the local community from dredging and dredged material management will be minimised by: <ul style="list-style-type: none"> • All construction activities, including dredging, being undertaken in accordance with Environmental Protection (Noise) Regulations 1997; • Selection of equipment to reduce noise; and • Regular monitoring and maintenance of equipment so that equipment remains in good working condition and noise emissions are kept to a minimum. As dredging and reclamation activities will occur 24 hours a day, 7 days a week, a Noise Management Plan will be developed to manage construction noise, in accordance with the Environmental Protection (Noise) Regulations 1997.	<ul style="list-style-type: none"> • Draft Statement of Planning Policy: Road and Rail Transport Noise (WAPC 2005); • Preliminary Draft Guidance Statement No. 14: Road and Rail Transport Noise (EPA 2000d); • Environmental Protection (Noise) Regulations 1997 (WA); and • Guide to Noise Control on Construction, Maintenance and Demolition Sites—AS 2436–1981. 	Minor
Hydrocarbons and Hazardous Wastes	To ensure hydrocarbons and any other hazardous wastes are handled and stored in a manner that minimises the potential for impact on the environment through leaks and spills.	<ul style="list-style-type: none"> • Soil contamination resulting from machinery fuel/ oil spills during construction phase; and • Toxic effects to marine fauna through accidental release of hydrocarbons (major spills). 	Particular measures to manage hydrocarbons during the dredging activities include implementation of: <ul style="list-style-type: none"> • Appropriate storage and handling procedures; • Segregation of hydrocarbon waste from stormwater and other water via closed systems; • Environmentally acceptable recycling and/or disposal of captured waste; • Spill contingency plans prepared to ensure appropriate measures are taken to manage refuelling, storage and spill management; and • Spill response kits will be located in close proximity to storage areas for prompt response in the event of a spill or leak. 	<ul style="list-style-type: none"> • Guideline No. 1: Controlled Waste Generators March 2004 (DoE 2004c); • Guideline No. 2: Controlled Waste Carriers March 2004 (DoE 2004d); • Guideline No. 3: Controlled Waste Treatment or Disposal Sites March 2004 (DoE 2004e); • User Guide No. 4: Controlled Waste Tracking System October 2007 (DEC 2007); • User Guide No. 5: Paper Tracking Forms March 2004 (DoE 2004f); and • Landfill Waste Classification and Waste Definitions 1996 (DoE 1996). 	Low

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Solid and Liquid Waste Management	To ensure that wastes do not adversely affect health, welfare and amenity of people and land uses and is managed in accordance with waste hierarchy.	Impacts to the surrounding environment, health, welfare and amenity of people and land uses as a result of incorrect management and disposal of solid and liquid waste.	Particular measures to reduce waste generation include: <ul style="list-style-type: none"> • A waste hierarchy program; • Clear signage and coverage of wastes; • Collection of domestic rubbish in bins and recycled or disposed of by a licensed contractor at the municipal landfill; • Storage of recyclable materials in a designated area until their removal from site; • Return of empty oil and chemical containers such as metal or plastic drums to the supplier for reuse or recycling where possible; and • Use of absorbent material to mop up minor oil or chemical spills and disposed of appropriately as contaminated material. 	<ul style="list-style-type: none"> • Landfill Waste Classification and Waste Definitions 1996 (DoE 2005). 	Low
Social Surrounds					
Land Use	To ensure the rehabilitation of DMMA H achieves an acceptable standard compatible with the intended land use.	<ul style="list-style-type: none"> • Potential increase in dust generation from DMMA H; • Introduction and establishment of weed species; and • Modification of the landform resulting in altered local erosion, stability and drainage. 	<ul style="list-style-type: none"> • Implementation of the Land Use Management Plan (Appendix B5); • Stabilisation of the exposed DMMA H surfaces; • Encouraging the development of a crust to protect the surface of DMMA H from wind erosion; • Weed hygiene processes; and • Management of stormwater flows at DMMA H to prevent erosion. 	<ul style="list-style-type: none"> • EPA Position Statement 6: Towards Sustainability (EPA 2004a); • EPA Position Statement 7: Principles of Environmental Protection (EPA 2004b); and • EPA Guidance Statement No. 55: Implementing Best Practice in Proposals Submitted to the Environmental Impact Assessment Process (EPA 2003). 	Minor
Visual Amenity	To ensure that aesthetic values are considered and measures are adopted to reduce visual impacts on the landscape to as low as reasonably practicable.	Loss of visual amenity from sensitive receptor locations, including Wedgefield and Port Hedland.	<ul style="list-style-type: none"> • Appropriate design including configuration and landforming of berms; and • Investigation and use of vegetation screening where practicable. 	<ul style="list-style-type: none"> • Guidelines for Landscape and Visual Impact Assessment (United Kingdom Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA) 2002); • Visual Landscape Planning in Western Australia: a Manual for Evaluation, Assessment, Siting and Design (WAPC 2007); and • Guidance on the New Approach to Appraisal (Department of the Environment, Transport and the Regions 1998). 	Minor
Cultural Heritage	To ensure that changes to the biophysical environment do not adversely affect historical and cultural associations and comply with relevant heritage legislation.	Potential impacts heritage as a result of the Nelson Point Dredging Project include: <ul style="list-style-type: none"> • Disturbance of culturally significant heritage sites; • Reduced access to traditional hunting and fishing grounds; • Impacts on cultural associations to the site and surrounding areas; and • Direct loss of indigenous heritage site and/or artefacts. 	<ul style="list-style-type: none"> • Avoid disturbance to Aboriginal heritage sites where possible; and • Section 18 approvals and the implementation of a Cultural Heritage Management Plan. 	<ul style="list-style-type: none"> • <i>Aboriginal Heritage Act 1972</i>; • EPA Guidance Statement No. 41: Assessment of Aboriginal Heritage 2004; and • Heritage of Western Australia Regulations 1991. 	Minor
Recreation Areas	To ensure that existing and planned recreational uses are not compromised.	<ul style="list-style-type: none"> • Short-term restricted access and exclusion of boating and fishing activities within the harbour during dredging activities; • Long-term restricted access to DMMA H and surrounding areas; and • Reduced amenity of immediate surrounding environment for recreational uses. 	<ul style="list-style-type: none"> • Inform the local community of the scheduling of dredging and construction activities and of restrictions to the harbour; • Working with the community to identify opportunities for maintaining and/or enhancing coastal access for recreational use; and • Continued support for the Town of Port Hedland and Port Hedland Port Authority through the Community Partnership Program. 	<ul style="list-style-type: none"> • The Pilbara Coastal Water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives (DoE 2006b). 	Minor