1 INTRODUCTION

1.1 BACKGROUND

BHP Billiton Iron Ore (BHPBIO) is one of Australia’s largest iron ore producers with mine, rail and port operations located in the Pilbara region of Western Australia (Figure 1.1).

BHPBIO exports its products to steelmakers in Japan, Korea, Taiwan, China, Europe and Australia through Port Hedland, which is one of the busiest commodity ports in the world.

BHPBIO’s current port operations consist of processing, stockpiling and shiploading facilities at Nelson Point and Finucane Island, referred to as the Inner Harbour (Figure 1.2).

BHPBIO is in a period of significant growth and has been focused on growing the business to meet the expected demand in iron ore. This has been, and continues to be, achieved by a series of Rapid Growth Projects which enable our system’s capacity to be increased incrementally (i.e. Rapid Growth Projects 1, 2, 3 and 4). BHPBIO is embarking on this development program to achieve a target of 300 million tonnes per annum (Mtpa) of installed capacity by 2015 for Western Australia Iron Ore operations.

Maximising the output from the Inner Harbour is an essential step in this program and the feasibility of additional iron ore loading and berthing facilities within the Port Hedland Inner Harbour is currently being undertaken as part of Rapid Growth Project 5 (RGP5).

RGP5 will result in BHPBIO’s overall capacity increasing to nominally 205 Mtpa and includes the construction of a new two-berth wharf facility and installation of new ship-loading infrastructure at Harriet Point, immediately south of Utah Point and the existing berths at Finucane Island.

1.2 PURPOSE OF THIS DOCUMENT

BHPBIO is seeking to obtain environmental approval for proposed dredging and dredge material management activities associated with the proposed RGP5 works at Harriet Point.

The purpose of this Environmental Referral Document (ERD) is to formally refer the proposed dredging operations to the Environmental Protection Authority (EPA) for setting the level of assessment under Section 38 of the Environmental Protection Act 1986 (EP Act) Western Australia.

This document has been prepared in accordance with the requirements of Part IV of the EP Act and is structured as follows:

- The Environmental Impact Assessment Process: A description of the assessment approach, schedule and applicable legislation and standards;

- Project Description:
  - A summary description of the Harriet Point Dredging proposal;
  - A summary of alternatives considered and justification for the selection of the preferred option;

- Community and Other Consultation: A summary of the communication and stakeholder consultation undertaken for the project;

- Existing Environmental Setting: A summary of existing environmental information for the marine and terrestrial environment within the vicinity of Port Hedland;

- Impact Assessment and Management:
  - Identification of the relevant environmental factors (key and other relevant) and the potential environmental impacts known at this stage of the project;
  - A risk assessment of the potential environmental impacts, their significance, identification of management measures and the resulting residual risk; and
1.2.1 Proponent Details

The proponent for this proposal is:
BHP Billiton Iron Ore (BHPBIO)

The key contact for this proposal is:

Gavin Price
Manager of Environment and Sustainable Development
BHP Billiton Iron Ore
Level 17, 225 St Georges Terrace
PERTH WA 6000

Ph: (08) 6224 4024
Email: Gavin.Price@bhpbilliton.com

1.3 PROPOSAL DETAILS

The title of the proposal is ‘Port Hedland, Harriet Point Dredging Program’ (Harriet Point Dredging).

1.3.1 Proposal Overview

Dredging at Harriet Point will involve dredging of approximately 3.9 Mm$^3$ of material for the development of two new berths within the Port Hedland harbour. This includes dredging of berthing pockets, an extension to the existing departure channel to allow for safe departure of loaded vessels, and a swing basin to enable arriving vessels to gain access to the new berths (Figure 1.4)

A proportion of the dredged material that is characterised as Potential Acid Sulphate Soils (PASS) will be disposed of at an existing offshore spoil ground (Spoil Ground ‘I’), whilst the remaining material is proposed to be pumped to onshore dredge material management areas (DMMA) (Figure 1.5).

Subject to obtaining appropriate State and Commonwealth approvals, dredging is scheduled to commence in Quarter 1 2009.
FIGURE 1.1

BHPBIO EXISTING PILBARA OPERATIONS

Rev No. 2
Project: WV03418
Drawn: 23/06/2008
Drawing: WV03418_G_070_2

Source: Topography, Geoscience Australia, GEODATA Topo 250K V3
Datum: GDA94
Map Grid: MGA94 Zone 50
Scale @ A4: 1:1,500,000
PORT HEDLAND EXISTING OPERATIONS

Legend
- Existing Rail
- FMG Proposed Rail
- Existing Shipping Channel

Source:
Orthorectified Aerial Photograph: 15/06/2007 (BHPBIO).
Topography: Geoscience Australia, GEODATA Topo 250K V3.
Channel: Navy Hydrographer (Aus00740).

Datum: GDA94
Map Grid: MGA94 Zone 50

Scale @ A4: 1:75,000

FIGURE 1.2

Rev No. 1
Project: WV03418
Drawn: 08/05/2008
Drawing: WV03418_G_071_1
1.4 ASSESSMENT APPROACH

1.4.1 Overview

The EP Act is the principal statute that provides a tool for environmental protection in the state of Western Australia. The Act is administered by the EPA, the Department of Environment and Conservation (DEC) and the Minister for the Environment.

Preliminary discussions held with the EPASU indicated that an Assessment on Referral Information (ARI) level of assessment under the EP Act was likely for this proposal if the activities could be managed within the existing EPA policy framework.

The ARI level of assessment is usually applied to proposed developments that raise one, or a small number of significant environmental factors which can be readily managed (EPA 2002). Other recent dredging proposals of a similar nature, within the Port Hedland area, have been assessed by the EPA at an ARI level of assessment.

On that basis, BHPBIO has decided not to refer the proposal until completion of the relevant environmental studies with the expectation that the results will indicate that potential impacts to the environment can be readily managed.

1.4.2 Risk-Based Assessment

The overarching principles of sustainability and biodiversity have been applied to the Harriet Point Dredging proposal to ensure that it avoids, as far as practicable, hazards that could lead to potential environmental impacts. These principles form an integral part of the impact assessment approach outlined in this ERD and have been used to identify the preferred dredging method and material management approach.

A qualitative risk-based approach has also been adopted to systematically determine the relevant environmental and social factors for the Harriet Point Dredging proposal. These factors have been identified through existing information, findings of investigative studies, consultation with the EPA and other stakeholders.

In order to determine the ‘key’ and ‘other’ relevant environmental factors, the inherent risk of each factor was assessed using BHP Billiton’s risk assessment methodology to categorise the significance as critical, major, moderate, minor or low. The key environmental factors were defined as:

- Having a critical, major or moderate significance;
- Requiring a more detailed assessment; and
- Requiring a higher level of management measures and controls to ensure potential impacts are minimised.

The key environmental factors have been identified as:

- Marine water quality;
- Acid sulphate soils;
- Marine habitat disturbance (mangroves); and
- Land use.

Those factors not considered key, have been termed as ‘other’ relevant environmental factors. Other relevant environmental factors were defined as:

- Having a minor or low significance;
- Requiring a less detailed assessment; and
• Requiring a lower level of management measures and controls to ensure impacts are minimised and in general can be managed via existing management controls established in the BHPBIO construction Environmental Management Plan.

The other relevant factors have been identified as:

• Marine habitat disturbance (other);

• Marine fauna;

• Marine pest species;

• Coastal processes;

• Terrestrial flora and fauna;

• Construction noise;

• Visual amenity;

• Indigenous heritage;

• Recreation;

• Construction dust;

• Waste management; and

• Hydrocarbons and hazardous materials.

The residual risk associated with these factors is discussed in Sections 8 and 9 and the associated actions to minimise potential impacts. Management Plans have been developed for the key environmental factors and are included in Appendices C, D, E and F.

Details of the assessment approach applied to the Harriet Point Dredging Program are outlined in Figure 1.3.

Contractors undertaking the dredging and associated activities will also be required to develop an Environmental Management Plan that addresses specific Project requirements. This will be consistent with the commitments made in this ERD and BHPBIO’s environmental management system requirements. This includes specific environmental management procedures, risk management, induction and training, inspections and audits, event management, emergency response, performance tracking, reporting and record keeping.

Prior to mobilisation the contractor will also be required to participate in a Construction Risk Assessment Workshop detailing how specific environmental risks associated with their scope of work will be managed.
Figure 1.3 – Risk-based approach to identifying key environmental factors relevant to the Harriet Point Dredging Program
1.5 APPLICABLE LEGISLATION AND STANDARDS

BHP Billiton has developed a set of Health, Safety, Environment and Community (HSEC) Standards that apply to all its businesses. These Standards form the basis for the development and application of HSEC management systems at all levels in the company. Where applicable, these Standards will be applied to the Harriet Point Dredging Program.

The EPA and DEC provide direction for environmental protection and impact assessment through published guidelines and position statements. BHPBIO has referred to these publications in investigating and reporting on aspects of this proposal.

The key EPA Position Statements and Guidelines that are likely to be of relevance to this project are as follows:

- EPA Position Statement 6: Towards Sustainability (2004);
- EPA Position Statement 7: Principles of Environmental Protection (2004);
- EPA Guidance Statement No. 1: Protection of Tropical Arid Zone Mangroves along the Pilbara Coastline (2001);
- EPA Guidance Statement No. 8: Draft Environmental Noise (2007);
- EPA Guidance Statement No. 12: Minimising Greenhouse Gases (2002);
- EPA Guidance Statement No. 29: Benthic Primary Producer Habitat Protection for Western Australia’s Marine Environment (2004);
- EPA Guidance Statement No. 41: Assessment of Aboriginal Heritage; (2004);
- EPA Guidance Statement No. 51: Terrestrial Fauna Surveys for Environmental Impact Assessment (2004);
- EPA Guidance Statement No. 55: Implementing Best Practice in Proposals Submitted to the Environmental Impact Assessment Process (2003);
- EPA Guidance Statement No. 56: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment (2004); and

The DEC guidelines that are of relevance to this proposal include:

- Pilbara Coastal Water Quality Consultation Outcomes Environmental Values and Environmental Quality Objectives (DoE 2006);
- General Guidance on Managing Acid Sulphate Soils (2003);
- Preparation of Acid Sulphate Soil Management Plan (2003); and
- Treatment and Management of Disturbed Acid Sulphate Soils (2004).

BHPBIO, in planning and implementing the proposed dredging proposal, has adopted the principles of environmental protection as outlined in section 4A of the EP Act and expanded upon in EPA Position Statement No.7 (2004), i.e.:

- Precautionary principle;
- Principle of intergenerational equity;
- Principle of conservation of biological diversity and ecological integrity;
- Principles relating to improved valuation, pricing and incentive mechanisms; and
REFERRAL DOCUMENT

- Principles of waste minimisation.

In particular, these principles were considered as part of the options assessment selection process, including selection of the preferred dredged material management areas (Table 1.1).

Table 1.1 – Principles of Environmental Protection

<table>
<thead>
<tr>
<th>Principle of Environmental Protection</th>
<th>Relevant</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precautionary principle</td>
<td>Yes</td>
<td>The project has been subjected to a rigorous options evaluation which has assessed the project against potential environmental and social impacts and related criteria. <strong>Section 2</strong> outlines the options evaluation process which was developed to determine the preferred option. A risk assessment has also been completed on the potential key and other relevant environmental factors associated with the proposal (<strong>Sections 8</strong> and <strong>9</strong>). Scientific studies have been completed to determine the baseline conditions of the existing environment (<strong>Sections 4</strong> and <strong>5</strong>). A conservative approach has been undertaken with PASS management to ensure the risk is minimised in transferring dredge material to land. Dispersion modelling of sediment plumes has been completed to determine the impacts that dredging activities and management of dredged material may have on the existing environment (<strong>Section 8</strong>) and to determine mitigation and management measures required (<strong>Section 4</strong> and <strong>8</strong>). The predictive plume dispersion modelling has taken a conservative approach in assessing the worst case scenario outcome from the dredging program. Management measures have also been developed to ensure any impacts are managed to as low as reasonably practicable (<strong>Section 8</strong>).</td>
</tr>
<tr>
<td>Principle of intergenerational equity</td>
<td>Yes</td>
<td>It is considered that this proposal can be implemented to not adversely impact on the environment for future generations. PASS material will be disposed of offshore as a precaution to avoid any potential long-term acidity in the inner harbour area (<strong>Section 8</strong>). The project has been designed to maximise placement to land of dredged material that is non-PASS. This material will potentially be utilised for BHPBIO projects, reducing the need for other environmental disturbance to obtain fill. BHPBIO has developed a community consultation program and is committed to keeping a dialogue open with the community and addressing such issues as ongoing access to the inner harbour and town infrastructure improvements (<strong>Section 3</strong>). Where practicable, indigenous heritage sites have been avoided and if any Aboriginal sites or objects will be disturbed by any of the proposed works then BHPBIO will seek to obtain relevant clearances (<strong>Section 9</strong>).</td>
</tr>
<tr>
<td>Principle of conservation of biological diversity and ecological integrity</td>
<td>Yes</td>
<td>These principles were considered through the option assessment process and development of assessment criteria to identify the preferred dredging method and material management approach (<strong>Section 2</strong>). Biological investigations have been completed to identify and determine the environmental baseline specifically, in regards to minimising disturbance to mangroves. Dispersion modelling has been completed to determine the impacts that dredging activities, offshore disposal and dredged material management may have on the corals in the area (<strong>Section 9</strong>).</td>
</tr>
</tbody>
</table>
Principle of Environmental Protection | Relevant | Consideration
--- | --- | ---
 Whilst there will be disturbance to the marine and terrestrial environments, the biodiversity and ecological integrity of the region will be maintained (Sections 8 and 9).
 The project is adhering to all key Western Australian and Commonwealth statutes and regulations as well as key International agreements which may apply, as outlined in this section.

Principles relating to improved valuation, pricing and incentive mechanism | Yes | BHPBIO recognises and accepts the costs of managing the proposal and its environmental impacts.
 The cost of environmental management has been included in the project costs and has been forwarded to the BHPBIO Board for approval.
 Within the execution phase of the project when procurement and services are purchased, BHPBIO will make decisions which incorporate valuation, pricing and incentive mechanism. BHPBIO will also endeavour to pursue these principles where ever possible during the life of the project.
 The cost of management of DMMA and construction of the berms at DMMA B1 and B2 has been included in the project budget.
 Decommissioning estimates will be accrued as part of BHPBIO’s closure planning process.

Principles of waste minimisation | Yes | BHPBIO will adopt the following approach to waste management for the project:
 • Avoid and reduce at source;
 • Reuse and recycle; and
 • Treat and/or dispose.
 The dredging footprint has been determined to minimise the volume of dredged material required to be removed from the seabed.
 Apart from PASS material, all dredged material will be placed on land and available for future use.

In addition to the EP Act, there are other Acts and Regulations that may apply to this proposal. The key Western Australian legislation and regulations which may apply to the proposal, but are not limited to, include:

- *Environmental Protection Act 1986*;
- *Environmental Protection (Noise) Regulations 1997*;
- *Aboriginal Heritage Act 1972*;
- *Pollution of Waters by Oil and Noxious Substances Act 1987*;
- *Pollution of Waters by Oil and Noxious Substances Regulations 1993*;
- *Soil and Land Conservation Act 1945*;
- *Port Authorities Act 1999*;
- *Contaminated Sites Act 2003*; and

The key Commonwealth legislation and regulations which may apply to the proposal, but are not limited to, include:
• Aboriginal and Torres Strait Islander Heritage Protection Act 1984;
• Australian Heritage Council Act 2003;
• Australian Ballast Water Management Requirements & Australian Quarantine Regulations 2001;
• Hazardous Waste (Regulation of Exports and Imports) Act 1989; and
• Environmental Protection (Sea Dumping) Act 1981.

The key International Agreements which may apply to the proposal, but are not limited to, include:
• The Japan-Australia Migratory Bird Agreement (1974) (JAMBA);
• The China-Australia Migratory Bird Agreement (1986) (CAMBA); and

1.5.1 Other Approvals

As the proposal includes sea dumping within Commonwealth waters it will be necessary to obtain a Sea Dumping Permit under the Environmental Protection (Sea Dumping) Act 1981. The Sampling and Analysis Plan (SAP) and the Sea Dumping Permit Application were submitted to the Department of the Environment, Water, Heritage and the Arts (DEWHA) in August 2008.

The proposal is not expected to significantly impact on any matters of National Environmental Significance (NES) and as such the proposal has not been referred to DEWHA under the Environmental Protection and Biodiversity Conservation Act 1999. Other than sea dumping, no activities are proposed in the Commonwealth marine environment.

In accordance with the Aboriginal Heritage Act 1972, consent is required to use land on which Aboriginal sites or objects are located. If any Aboriginal sites or objects will be disturbed by any of the proposed works then BHPBIO will seek to obtain the relevant clearance required under Section 18 of the AH Act before any disturbance takes place.
FIGURE 1.4
DREDGING FOOTPRINT
BERTH POCKET, DEPARTURE & SWING BASIN

Legend
- Harriet Pt Proposed Dredging Footprint

Source:
- Orthorectified Aerial Photograph: 15/06/2007 (BHPBIO)
- Harriet Pt Footprint: P100 - D0148 Rev D 14/04/2008 (MPD JV)