2 PROJECT DESCRIPTION

2.1 STATEMENT OF HARRIET POINT DREDGING PROPOSAL

BHPBIO is seeking approval under Part IV of the Environmental Protection Act 1986 for dredging at Harriet Point. The proposal is a component of the RPG5 works to increase the system capacity of BHPBIO’s operations to 205 Mtpa.

The proposal involves the dredging of approximately 3.9 Mm$^3$ of material for two new berth pockets and extensions to the existing departure channel and swing basin at Harriet Point to accommodate vessels of approximately 250,000 dead weight tonnes (DWT).

The management of the dredged material to DMMA will be dependent on its characteristics. PASS material will be disposed offshore at the PHPA Spoil Ground ‘I’ with the remaining material placed at DMMA B1 and B2 and excess fines stored at DMMA A.

The key characteristics of this proposal are outlined below in Table 2.1.

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proponent</td>
<td>BHP Billiton Iron Ore</td>
</tr>
<tr>
<td>Duration of Dredging</td>
<td>Approximately 40 weeks</td>
</tr>
<tr>
<td>Volume of material to be dredged</td>
<td>Approximately 3.9 Mm$^3$</td>
</tr>
<tr>
<td>Area of marine disturbance for dredging</td>
<td>Not more than 25 ha at Harriet Point &amp; Stanley Point</td>
</tr>
<tr>
<td>Area of land disturbance for dredging</td>
<td>Not more than 4 ha at Harriet Point &amp; Stanley Point</td>
</tr>
<tr>
<td>Offshore disposal of dredged material</td>
<td>Not more than 800,000 m$^3$ offshore disposal of material to PHPA Spoil Ground ‘I’</td>
</tr>
<tr>
<td>Onshore disposal of dredged material</td>
<td>Dredge Material Management Area B1: Area of not more than 26 ha</td>
</tr>
<tr>
<td></td>
<td>Dredge Material Management Area B2: Area of not more than 19 ha</td>
</tr>
<tr>
<td></td>
<td>Dredge Material Management Area A: Area of not more than 85 ha (70 ha settlement area)</td>
</tr>
<tr>
<td>Final height of DMMA B1 and B2</td>
<td>Seawalls: Not more than 7 m AHD</td>
</tr>
<tr>
<td></td>
<td>Berms: Not more than 17 m AHD</td>
</tr>
</tbody>
</table>

2.2 JUSTIFICATION AND CONTEXT OF PROPOSAL

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 is in a phase of significant growth and has been focused on growing the business via a phased approach to meet market demand. This has been, and continues to be, achieved by a series of Rapid Growth Projects which enables the export capacity to be increased incrementally (i.e. Rapid Growth Projects 2, 3 and 4).

The expansion program will continue to grow with market demand for iron ore, which is expected to remain strong for some time as China continues its industrialisation phase. This growth will also have a flow-on effect to other steel producers in the Asian region and will underpin current and proposed expansion activities.
To meet the expected growth in demand for iron ore, BHPBIO is embarking on a development program to achieve a target of 300 Mtpa at its Western Australia Iron Ore operations. Maximising the output from the harbour is an essential step in this program and the RGP5 expansion includes the development of additional iron ore loading and berthing facilities on Finucane Island. The proposed dredging at Harriet Point is a component of RGP5, which is the subject of this referral document.

In pursuing ongoing growth plans, BHPBIO is committed to working with local communities to support sustainable development in the region and ensure their needs are incorporated into growth plans.

2.3 ALTERNATIVE OPTIONS CONSIDERED

Several berth locations, dredging and dredge material management options were initially investigated to identify an approach that best met BHPBIO’s project goals, environmental management requirements, technical achievability, legislative compliance, PHPA planning requirements and local community expectations. Nelson Point, Harriet Point and Burgess Point were all considered as potential sites for additional iron ore loading and berthing facilities to support a capacity increase to 205 Mtpa. All of the above factors were considered as part of the assessment of the preferred site. However, Harriet Point was the preferred site due to the shorter timeframes available to achieve the expanded export capacity.

Following selection of Harriet Point, an options evaluation assessment was undertaken to identify the preferred dredging method and material management approach. The methodology developed to assist in the determination of the preferred option included three phases:

- Phase 1 Option Identification – determination of the different suite of options for both the dredging and dredge material management options;
- Phase 2 Option Assessment Criteria – development of appropriate assessment criteria to evaluate all options. A range of categories, including broad environmental and socio-economic criteria were considered; and
- Phase 3 Measurement and Evaluation – application of a weighting to each criteria (essential, desirable and important), before the evaluation of the option against that criteria.

The various options were subjected to an assessment against environmental and socio-economic criteria. Table 2.2 provides an example of some of these criteria applied as part of the option assessment process. During the assessment process it was recognised that no single option would fully meet all of the criteria and it was therefore BHPBIO’s goal to find the option that best met the greatest number of criteria.
Several sites were initially identified as possible DMMA and the potential sites were narrowed down to include three land-based sites and one ocean-based site. These locations were:

- Offshore Spoil Ground ‘I’;
- Intertidal DMMA B1 and B2; and
- Onshore DMMA A.
An important consideration for these different options was the management approach for PASS material found within the Harriet Point dredging footprint. Dredging and dredge disposal management options for the preferred locations also considered whether PASS material could be co-disposed with non-PASS material on land, segregation of PASS material and disposal on land, or segregation of PASS material and disposal offshore.

The evaluation process resulted in the selection of two preferred options for the dredging project. The two highest scoring options were:

- Co-disposal of PASS material and disposal of all material to PHPA’s offshore Spoil Ground ‘I’; and
- Segregation of PASS material for offshore disposal to Spoil Ground ‘I’, and maximum disposal of non-PASS material to DMMA B1 and B2 with the remainder to DMMA A.

Of the two preferred options, the second option was carried forward to the design stage based on the recognition that if the dredged material is appropriately managed, it may provide a valuable commodity for use in future developments.

### 2.4 HARRIET POINT DREDGING PROPOSAL

#### 2.4.1 Overview

Dredging at Harriet Point is required to allow for the construction of two new shipping berths to accommodate vessels of approximately 250,000 DWT. The proposed existing and proposed berths are shown in Figure 2.1.

The dredging program is comprised of the following:

- Dredging of two new berth pockets to a depth of approximately -20 m CD;
- Extending and deepening the existing departure channel adjacent to the berths to approximately -15 m CD to allow for safe departure of loaded vessels; and
- Extending and deepening the swing basin at Harriet Point to a maintained depth of -10 m CD in order for arriving vessels to gain access to the new berths.

In order to effectively manage the dredged material, one offshore and three onshore sites have been identified as DMMA. The offshore DMMA (Spoil Ground ‘I’) is located 11 km north of Port Hedland while the three onshore DMMA (A, B1 and B2) are located in the intertidal area of the Port Hedland harbour (Figure 1.5).

Capital works for these onshore DMMA will involve the following:

- Establishment of footings for a seawall at DMMA B1 & B2;
- Construction of sea walls to approximately 7 m Australian Height Datum (AHD) using rock armour, core material and geotextile at DMMA B1 & B2;
- Construction of berms to approximately 17 m AHD at DMMA B1 and B2;
- Construction of earth bunds to approximately 7.5 m AHD using suitable in-situ material, clean sourced fill and rock armour at DMMA A;
- Clearing of approximately 3.4 ha of mangroves at DMMA A and B1;
- Clearing of approximately 34 ha of other marine habitat (samphire-dominated) and terrestrial vegetation;
- Installation of one discharge outlet/weir each at DMMA A, B1 and B2; and
- Installation of pipes and pumps for the distribution of dredged material between DMMA B1, B2 and A.
The overlying sediment layer within the dredging footprint has been characterised as PASS material (SKM 2007b). Initial investigations have found that the majority of the PASS material is likely to extend to a depth of 2 m below the seabed surface. However, there is potential for ‘pockets’ of PASS material to extend beyond 2 m. Details of the PASS material is described in Section 4, Marine Existing Environment.

Dredged material characterised as PASS will be disposed of at the PHPA offshore Spoil Ground ‘I’ using split hopper barges. Once the barges have been loaded, they will transport the PASS dredged material to the offshore Spoil Ground ‘I’ via the existing shipping channel. Other dredged material (non-PASS) will be transferred to the DMMA B1, B2 and A (Figure 1.5).

Given that the exact volume of PASS material requiring offshore disposal has been conservatively defined, this assessment considers two potential disposal scenarios:

- **Scenario 1** represents the conservative estimate of a maximum depth of 2 m below the seabed surface being dredged and treated as PASS material. In this case approximately 800,000 m$^3$ of PASS material would be disposed of at Spoil Ground ‘I’ with the remaining 3.1 Mm$^3$ managed onshore.
- **Scenario 2** represents the best case estimate that the sediment profile contains minimal PASS material. In this case 250,000 m$^3$ of PASS material would be disposed of at Spoil Ground ‘I’ with the remaining 3.7 Mm$^3$ managed onshore.

These two scenarios represent the best and worst case scenarios with regards to the volume of PASS material. It should be noted that the actual volume of PASS material will fall within these two scenarios.

### 2.4.2 Capital Dredging Works

#### 2.4.2.1 Overview

The Harriet Point Dredging Program will require approximately 3.9 Mm$^3$ of material to be dredged from a footprint area of 29 ha. These volumes are provided in Table 2.3.

<table>
<thead>
<tr>
<th>Location</th>
<th>Depth of Dredging (m CD)</th>
<th>Approximate Dredge Volume (Mm$^3$)</th>
<th>Approximate Footprint (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed berth pockets</td>
<td>-20</td>
<td>1.9</td>
<td>13</td>
</tr>
<tr>
<td>Departure areas</td>
<td>-15</td>
<td>1.8</td>
<td>14</td>
</tr>
<tr>
<td>Manoeuvring area</td>
<td>-10</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>N/A</td>
<td>3.9</td>
<td>29</td>
</tr>
</tbody>
</table>

Based on the current geotechnical information for the Harriet Point footprint, pre-treatment of the material via drilling and blasting will not be required. The dredging works will involve:

- The removal of mangroves from Harriet Point and Stanley Point (3.08 ha);
- The dredging of the PASS material with a Backhoe Dredge (BHD) or Grab Dredge (GD) with subsequent offshore disposal via split hopper barges; and
- The dredging of the remaining material with a Cutter Suction Dredge (CSD) and the pumping of the material to DMMA B1, B2 and A.
2.4.2.2 Mangrove Removal

As part of the dredging program, approximately 3.1 ha of mangroves will need to be cleared from the south-eastern tips of Harriet Point and Stanley Point.

The mangroves will be cleared via land based and floating equipment. The land based equipment will preferentially remove the mangroves from limestone based areas and where possible, from the surrounding mud areas.

Any land based equipment will be unloaded at the site from a barge to avoid the requirement for an onshore access path. Procedures will be established to minimise the loss of any cleared material (e.g. mangrove roots) into the harbour. Any floating debris will be removed.

All cleared mangrove material will be removed from site via a barge again eliminating the requirement to clear further mangroves to create a land based path. Mangroves will be transferred to a waste management facility where they will be treated as green waste.

2.4.2.3 Backhoe Dredge / Grab Dredge

The overlying PASS material will be removed using a BHD or GD which will transfer material to a barge for transportation to the offshore DMMA Spoil Ground ‘I’. These activities are expected to take approximately 20 weeks.

2.4.2.4 Cutter Suction Dredge

The CSD will remove the harder consolidated material beneath the unconsolidated surface layer. Due to the 5-6 m draught of a large CSD, it is anticipated that dredging will progressively occur from the north-east, where the water is sufficiently deep for the dredge to operate and move towards the shallower areas to the west of the proposed dredge areas. These activities are expected to take approximately 24 weeks, some of which will occur in parallel with dredging of the PASS material.

2.5 DREDGED MATERIAL MANAGEMENT

Approximately 3.9 Mm$^3$ of material will be dredged from the Harriet Point footprint. As described in Section 2.4.1, it is estimated that between 3.1 Mm$^3$ and 3.7 Mm$^3$ of non-PASS material will be directed to onshore DMMAs. The majority of the material will be placed at DMMA B1 and B2 and fine material will be pumped to DMMA A. It is estimated that up to 20% by volume of total insitu material will be fines.

Due to bulking of materials as they are broken up from consolidated layers into a slurry for transportation to DMMA, the final volume to be placed on land is greater than the volume actually dredged from the harbour. The estimated maximum volume (based on the minimum volumes placed offshore) in each DMMA is indicated in Table 2.4.

<table>
<thead>
<tr>
<th>DMMA</th>
<th>Volume of Material (Mm$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMMA B1 &amp; B2</td>
<td>3.1</td>
</tr>
<tr>
<td>DMMA A</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td>5.9</td>
</tr>
</tbody>
</table>

2.5.1.1 Offshore DMMA - Spoil Ground ‘I’

The PHPA Spoil Ground ‘I’ which is currently approved for disposal of dredge spoil from maintenance dredging activities within the Port Hedland harbour will be utilised for the disposal of PASS material.

PHPA has provided approval for BHPBIO to utilise Spoil Ground ‘I’ for the disposal of up to 800,000 m$^3$. Some non-PASS material may be inadvertently collected through the dredging process and disposed of offshore.
The coordinates for the PHPA Spoil Ground ‘I’ are provided in Table 2.5.

Table 2.5 - Location of Port Hedland Spoil Ground ‘I’

<table>
<thead>
<tr>
<th>Latitude (South)</th>
<th>Longitude (East)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°11'25&quot;</td>
<td>118°34'14&quot;</td>
</tr>
<tr>
<td>20°11'25&quot;</td>
<td>118°35'22&quot;</td>
</tr>
<tr>
<td>20°12'29&quot;</td>
<td>118°35'22&quot;</td>
</tr>
<tr>
<td>20°12'29&quot;</td>
<td>118°34'14&quot;</td>
</tr>
</tbody>
</table>

2.5.1.2 Onshore – DMMA B1 and B2

DMMA B1 and B2 are two existing bays located on the eastern side of Finucane Island and will cover an area of 26 ha and 19 ha, respectively.

Prior to the commencement of dredging both bays will require the construction of seawalls which will consist of rock armour and core material constructed at a slope of 1:2 up to a height of approximately 7.0 m AHD (Figure 2.2 and Figure 2.3). Rock material will be placed at the toe of the seawalls to avoid the need to excavate the mud substrate.

Construction of the seawalls will involve the use of earthmoving equipment, typically excavators and dump trucks. The inside face of the wall will be lined with geotextile material to enable initial seepage through the wall. The seepage will reduce as the work progresses and the fines build up against the geotextile layer. The excess water discharge structures will be designed to prevent seawater ingress at high tide.

It is estimated that approximately 100,000 m$^3$ of rock armour and 200,000 m$^3$ of core material will be required for construction of seawalls at DMMA B1 and B2. These materials will be sourced from third party suppliers within the region. Where possible, existing rock armour material will be reclaimed from existing seawalls that are currently located behind the proposed new seawalls. Storage of rock armour will be within the existing cleared footprints on the Finucane Island site.

The outfall weirs will be designed to incorporate scouring protection. The outlet structure will include an adjustable weir box with approximately eight to ten, 900 mm diameter pipelines used to decant the water from the discharge location to the adjacent creek or harbour. The weir box will be used as a tool to adjust retention time within the DMMA, by adding or removing planks and thereby adjusting the water level at the outlet.

Dredged material will be pumped directly from the CSD to DMMA B1 and B2. Settlement of competent material from the fine material and excess water will occur over the DMMA area. Water that has had its fines content sufficiently reduced will be discharged back to the marine environment. Excess water with significant fines content will be pumped to DMMA A for further settlement of the fine material. Settlement times will typically be a minimum of 48 hours, but may be adjusted based on monitoring of discharge water and will be achieved through alternating inflow between the three DMMA.

Berms will be constructed behind the seawalls to a height of approximately 17 AHD to minimise visual impacts of the Finucane Island infrastructure on Port Hedland. Competent dredged material will be stored behind the berms in DMMA B1 and B2. Some of the material may potentially be used for future developments.

2.5.1.3 DMMA A – Storage and Settlement Pond

DMMA A will be used for the receipt and processing of excess fines material pumped from DMMA B1 and B2 for final settlement before the discharge of the excess water into the creek system. Preferential discharge of dredged material will be via DMMA B1 and B2. Although unlikely, to provide flexibility in the management of dredge material and discharge water quality, discharge of dredged material directly to DMMA A may also be undertaken via the same onshore route as proposed for fines/water that is forwarded from DMMA B1.

DMMA A is located onshore, west of the access road leading to Finucane Island in an area characterised by hypersaline, supratidal mudflats with scattered vegetation. The construction footprint
for DMMA A is approximately 85 ha, with 70 ha required for the actual DMMA (Figure 1.3). An area south of the DMMA will be utilised as a laydown area.

DMMA A will require a perimeter bund wall around the 70 ha footprint. This will consist of both core material and rock armour to prevent erosion (Figure 2.4). Of the 2.3 km long bund wall, rock armour will cover approximately 500 m and will require a total volume of 1,000 m$^3$ of rock. Approximately 300,000 m$^3$ of core material will be used. The design height of the bund is approximately 7.5 m AHD.

Some clearing of vegetation will be required to provide access for earthmoving plant building the perimeter bunds at DMMA A. Vegetation under the bund wall footprint will be removed as required. Supratidal areas will be cleared and topsoil stored for potential reuse while remaining tidal areas will be covered with dredged material.

Excess water will be discharged from DMMA A on an as needs basis which may be up to 24 hours per day with volumes ranging from 2,500 m$^3$ to 4,500 m$^3$ per hour for the duration of the project. Discharge will be via a non return water outlet at the northern end of the DMMA (Figure 2.5). Outflow will be designed to regulate the flow rates and timing to achieve settlement requirements.

Ongoing monitoring will be undertaken to assess temperature, salinity and turbidity levels and where necessary, retention methods will be altered to achieve the desired water quality for the discharge waters.

During the operational period of DMMA A (i.e. when dredged material is pumped to this area), the perimeter bund and spigot bund will be constructed up to 9.5 m AHD to ensure appropriate water holding capacity to allow for suitable retention time. At the completion of Harriet Point dredging, DMMA A will contain fine material within bunds to a height of approximately 7.5 m AHD, roughly to the same height as the overland conveyor. This material will be investigated for use as engineering fill for future projects once the settlement process is complete.

BHPBIO will commit to either reusing this material within five years of final landform, or will develop and implement a rehabilitation plan accordingly. Prior to a decision on final land use, the area will be stabilised through use of chemical suppressants or capping material to minimise dust lift-off.

The intertidal environment will not be able to be reinstated to pre-DMMA conditions due to the relative change in level from the dredge material deposition i.e. it will sit above the tidal influence.

2.6 ANCILLARY REQUIREMENTS

2.6.1 Pipes and Pumps

There will be a need to transfer water and entrained fines in either direction between DMMA B1 and B2 through steel pipelines. The pipelines will cross under the trestle supporting the Berth C and D conveyor where it spans from the previous reclamation completed for Berth C and D.

The pipeline from DMMA B1 and B2 to DMMA A will be via the existing overland conveyor causeway. It is estimated that two steel or polypipe pipelines, each with an internal diameter of 900 mm will be required. This will not be on the conveyor itself, but will run along the existing causeway between the overland conveyor and BHPBIO’s Finucane Island rail line. Crossing the overland conveyor will be required at a number of locations to cover alternative spigot locations within the northern and southern boundaries of DMMA A, and will be achieved by removing modules of the conveyor. Figure 2.5 shows the related infrastructure for the project.

It is estimated that two to three large diesel pumps will be required to pump the water and fines to DMMA A. The pumps will be installed within the footprint of DMMA B1 and B2 and used on an as needs basis. Transfer of materials between DMMA B1 and DMMA B2 may also require the use of a pump.

2.6.2 Laydown Areas

Laydown areas required for this project will utilise already cleared land managed by BHPBIO as well as a newly cleared area south of DMMA A.
2.6.3 Plant and Equipment

Equipment will be required for earthworks to establish the DMMA, as well as for the dredging operation itself. It is anticipated that the following dredges, plant and vehicles will be required:

- Cutter Suction Dredge;
- Backhoe Dredge or Grab Dredge;
- Split Hopper barges;
- Bulldozers;
- Excavators;
- Trucks and water trucks;
- Rollers; and
- Graders.

2.7 PROJECT SCHEDULE

Subject to project approval from relevant regulatory bodies, it is anticipated that the dredging program will commence in Q1 2009. Dredging and dredged material management will continue for 24 hours/day, seven days a week and is anticipated to last for approximately 40 weeks.

This timeframe includes a contingency for expected operational delays and regular maintenance activities including:

- Spud movements or repositioning after every approximate 8 m of dredge progression;
- Anchor changes after every approximate 50 m of dredge progression;
- Cutter blockage and checks;
- Cutter changes if necessary;
- Mechanical breakdowns and bunkering;
- Delays for shipping movements; and
- Movement between dredge cuts.

Construction work for the establishment of the project DMMA is also expected to commence in the first quarter of 2009 and continue for approximately 4 months.
EXISTING & PROPOSED BERTH DEVELOPMENTS

Legend

- **Existing and Proposed Berths**
  - BHPBIO Berth - RGP 5 Proposed
  - BHPBIO Berth - Existing
  - FMG Berth - Existing
  - FMG Berth - Proposed
  - PHPA Berth - Existing
  - PHPA Berth - Proposed

Source:
Orthorectified Aerial Photograph: 15/06/2007 (BHPBIO)
Berth Locations: BHPBIO, 11/02/2008
Harriet Pt Berth: MPD JV 14/04/2008 F112-C-00148 Rev D

Project: WV03418
Drawing: WV03418_G_037

FIGURE 2.1

Rev No. 1
Project: WV03418
Drawn: 15/05/2008
Drawing: WV03418_G_037_1

Datum: GDA94
Map Grid: MGA94 Zone 50
Scale @ A4: 1:20,000
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.
2. HORIZONTAL COORDINATE SYSTEM: (PROJECTION: MGA94 ZONE 50) (DATUM GDA94)
3. ALL LEVELS ARE AHD.
4. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
5. CONTOUR INTERVAL 0.2m
6. BATHYMETRY SHOWN IS INDICATIVE ONLY AND IS NOT THE RESULT OF A DETAILLED SURVEY.

SCALE @ A4: 1:6,000
Datum: GDA94
Map Grid: MGA94 Zone 50

Source: Reclamation Areas B2:
F112-CSK-01004 Rev B, 20/06/2008 (MPD JV)
Seawall Cross-section:
F112-C-00162 Rev A (14/04/2008) (MPD JV)

FIGURE 2.3

DREDGED MATERIAL MANAGEMENT AREA B2

Rev No. 1
Project: WV03418
Drawn: 20/06/2008
Drawing: WV03418_G_118_1
GENERAL NOTES
---
1. As per Project Drawings, this document is an addendum or a related transaction.
2. All references are to be read in conjunction with all relevant drawings and specifications.
3. All levels are AHD.
4. Returns water outlet structure (projection: MGA94 Zone 50) (Datum GDA94).
5. Contour interval 0.2m.
6. Contractor to construct passing bays and access ramps.
7. General Notes

SCALE 1:2500 HOR. DATUM KEY DIAGRAM

M.H.W.S. +0.72m
H.A.T. +2.78m
M.L.W.S. -3.01m
L.A.T. 0.00m

DREDGED MATERIAL MANAGEMENT AREA A

Figure 2.4
Rev No. 0
Project: WV03418
Drawn: 13/06/2008
Source: Reclamation Areas A
Reclamation Areas A:
F112-C-00151 Rev C, 14/04/2008 (MPD JV)
FINUCANE ISLAND

Hunt Pt

B2

Utah Pt

B1

Harriet Pt

Owen Pt

Anderson Pt

Lumsden Pt

PORT HEDLAND

Nelson Pt

Legend

- Indicative Discharge Outlet
- Inlet Pipe
- Dredged Material Pipeline
- DMMA Construction Footprint
- Dredged Material Management Area
- Harriet Pt Proposed Dredging Footprint

FIGURE 2.5

Discharge Location:
A: F112-C-00148 Rev D, 14/04/2008
B1: F112-C-00151 Rev C, 14/04/2008


Datum: GDA94
Map Grid: MGA94 Zone 50
Scale @ A4: 1:30,000

Source:
Orthorectified Aerial Photograph - BHPBIO (15/06/2007)
Proposed Dredge Pipeline - MPD JV (02/05/2008)
Harriet Pt Footprint: F112-C-00148 Rev D, 14/04/2008 (MPD JV)
Reclamation Areas (MPD JV):
A: F112-C-00148 Rev C, Modified 20/06/2008
B1, B2: DES Seawall, Rev 3d, 14/04/2008

PROJECT INFRASTRUCTURE

Rev No. 2
Project: WV03418
Drawn: 1/07/2008
Drawing: WV03418_G_049_2