# Dudgeon Point Coal Terminals Project
# INITIAL ADVICE STATEMENT

September 2011

NORTH QUEENSLAND BULK PORTS CORPORATION

**Explanatory Note**

Important Things You Should Know About This Report:

This report has been prepared by NQBP with the input from consultants and it is based on the best information available of the time of the report's preparation. Master planning studies for the Port of Hay Point however are continuing and the scope of the Project may be revised between this document and the Draft EIS to reflect any final recommendations from the master planning studies.

NQBP and its consultants do not assume responsibility for the use of, or reliance on, the report by any third party and the use of, or reliance on, the report by any third party is at the risk of that party.

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| 0 | Issued for Use by R. Brunner, General Manager Planning – Hay Point |

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# 1. Introduction

The Port of Hay Point is situated on the Queensland coast approximately 38 kilometres by road south of Mackay. The port is one of the largest coal export ports in the world. North Queensland Bulk Ports Corporation Limited (NQBP) is the port authority and port manager for the Port of Hay Point under the *Transport Infrastructure Act 1994* (TI Act). The functions of NQBP as a port authority include establishing effective and efficient port facilities and services in its ports and making land available for the establishment, management and operation of port facilities in its ports by other persons.

NQBP's vision is to maintain the Port of Hay Point as one of Queensland's premier bulk materials handling ports, providing cost-efficient export facilities, to service coal mines in the central Queensland coal fields. Due to capacity constraints at existing coal export terminals in Queensland, NQBP is coordinating master planning and approvals for further expansion of coal export facilities in the port.

It is proposed to develop new coal export facilities for the export of up to 180 million tonnes per annum (Mtpa) on Strategic Port Land at Dudgeon Point in the Port of Hay Point. Dudgeon Point is around four kilometres north west of existing coal terminals in the port. NQBP holds approximately 1400 ha of land for port use at Dudgeon Point.

The proposed development of new coal terminals at Dudgeon Point, the '**Dudgeon Point Coal Terminals Project**', comprises development of two separate coal terminals at Dudgeon Point, supported by new offshore wharves, a rail connection to the Goonyella rail system, an expansion of the existing Tug Harbour and supporting infrastructure.

Following a public expression of interest process, Adani Mining Pty Ltd (Adani) and Dalrymple Bay Coal Terminal Management Pty Ltd (DBCTM) were selected in 2010 by NQBP as preferred proponents for the development of the new coal export facilities at Dudgeon Point. DBCTM has set up a separate company, Dudgeon Point Project Management Pty Ltd (DPPM), to undertake the development of a proposed new terminal at Dudgeon Point. NQBP is carrying out the master planning for this proposed development and is coordinating approvals for the development. Adani and DPPM will be designing, constructing and operating the proposed new coal terminals. NQBP will provide common infrastructure for the site, such as roads, water supply and tug facilities.

## 1.1 Document Purpose and Scope

The purpose of this Initial Advice Statement (IAS) is to provide information to:

- Assist the Queensland Coordinator-General to make a decision on a declaration of the Project as a project of State significance for which an Environmental Impact Statement (EIS) is required under Section 26 of the Queensland *State Development and Public Works Organisation Act 1971* (SDPWO Act). This would initiate the statutory impact assessment procedures of Part 4 of the Act;
- Enable stakeholders (including the general community) to determine the nature and level of their interest in the proposal; and
- Assist the Department of Employment, Economic Development and Innovation (DEEDI) on behalf of the Coordinator-General to prepare draft terms of reference (TOR) for an EIS for the proposed Project.

This IAS has been developed to provide both a preliminary overview of the project and an indication of the nature and extent of the potential social, economic and environmental impacts that may be associated with the construction and operation of the proposed Project, as far as they can be foreseen at the concept stage of project planning. The IAS also identifies the key statutory approvals that may be required for the Project to proceed and assessment requirements to be considered in the preparation of an EIS.

The IAS provides information about:

- relevant planning schemes or policy frameworks, including those of the relevant local government, as well as the State and Commonwealth governments;
- the project's potential effect on relevant infrastructure;
- the employment opportunities that will be provided by the project;
- the potential environmental effects of the project;
- the level of investment necessary for the proponents to carry out the project; and
- the strategic significance of the project to the locality, region and the State.

## 1.2 Project Setting

NQBP is the port authority for the Port of Hay Point, which is situated about 38 km south of Mackay by road or 25 km by direct line.

The Port Limits for the Port of Hay Point, as declared under the TI Act, extend to Half Tide Tug Harbour in the south and to the mouth of Bakers Creek in the north. The Port is within the Great Barrier Reef World Heritage Area (GBRWHA), which extends to the mean low water tide level at this location and offshore areas overlap with the Great Barrier Reef Marine Park (GBRMP).

Whilst the port is located within the Mackay Regional Council local government area, port land designated by the State as Strategic Port Land and port waters are under the planning control of NQBP as the port authority.

The existing port facilities at Hay Point currently comprises two separate coal export terminals:

- Dalrymple Bay Coal Terminal (DBCT), leased from the State Government by DBCT Management Pty Ltd ( a wholly owned subsidiary of Brookfield Infrastructure); and
- Hay Point Coal Terminal (HPCT), owned by BHP Billiton Mitsubishi Alliance (BMA) and operated by Hay Point Services Pty Ltd for BMA.

Together the two terminals service mines in the Central Bowen Basin region of Queensland. The location of the port relative to the other major coal infrastructure of Queensland, including existing and proposed coal mines, port and rail development, is identified in Figure 1.1.

The location of the proposed terminals within the Mackay region is shown Figure 1.2 and Figure 1.3.

Mines currently supplying DBCT include Blair Athol, Hail Creek, Goonyella, Riverside, German Creek, Oaky Creek, North Goonyella, Burton, Moranbah North, Millenium, Foxleigh, Moorvale and

Coppabella. Mines currently supplying HPCT include Goonyella, Riverside, Peak Downs, Saraji, Gregory, Norwich Park and South Walker.

The DBCT facility is serviced by four berths and the HPCT wharf by two, with a third currently under construction.

The Port of Hay Point is close to the beachside communities of Louisa Creek, Salonika, Half Tide and McEwen's Beach and the rural-residential communities of Timberlands and the Fenechvale Estate.

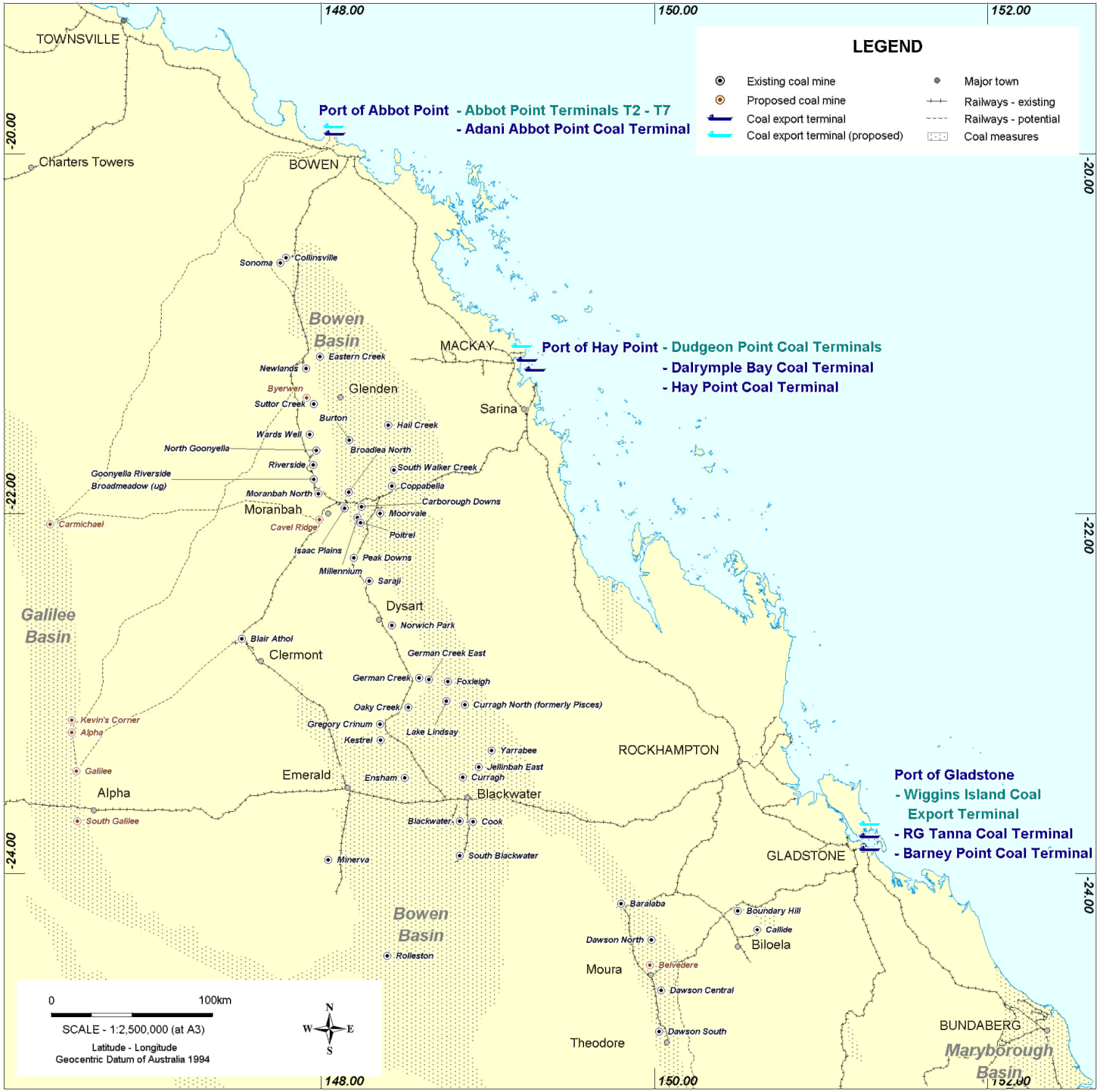
Dudgeon Point, which is located approximately 4 km to the north west of the existing coal terminals and approximately 10 km from the Bruce Highway, has been identified in recent port master planning studies as the preferred location for new coal terminals in the port.

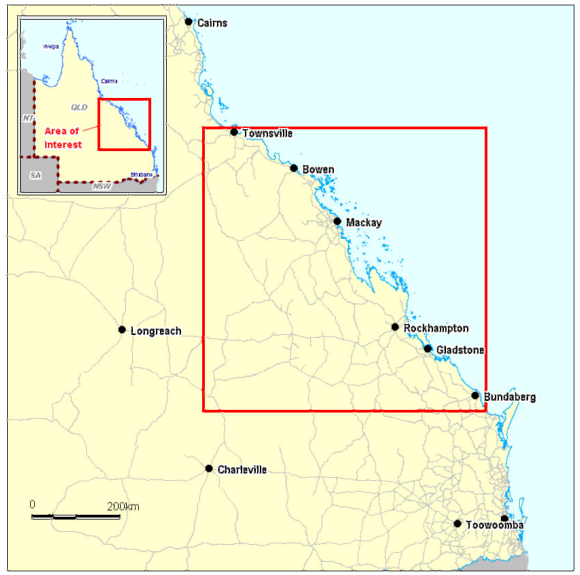
In addition to the development of new coal terminals, the existing Tug Harbour at Half Tide is proposed to be expanded to accommodate additional tugs needed to service the port. Coal will be transported to Dudgeon Point via the existing Goonyella rail system and a new rail spur through the Fenechvale area.

## 1.3 Relationship to other Projects

The coal terminals proposed by Adani and DPPM at Dudgeon Point will be multi-user facilities, servicing a number of mines.

Mine expansions in the Bowen Basin will also export through new coal export facilities proposed in the ports of Gladstone, Hay Point and Abbot Point. Coal from new mines proposed in the Galilee Basin will principally be exported through new export facilities at the Port of Abbot Point, although Adani has retained the option to also export coal from its Carmichael Coal Mine in the Galilee Basin through its proposed terminal at Dudgeon Point. The mine expansions are subject to the availability of port capacity and the specific mines that will supply the new terminals at Dudgeon Point are subject to commercial negotiations occurring at present.




**Source Information**

Railways - Commonwealth of Australia 2009
Alignment for the Queensland Rail Northern Missing Link digitised from map sourced from Queensland Rail website on 20 February 200
Surat Basin railway digitised on 11/12/2008 and sourced from Surat Basin Rail Study Stage 2 Feasibility Report on 30/09/2008
Adani proposed rail options digitised from Carmichael Coal Mine and Rail Project Initial Advice Statement dated 22 October 2010
Alpha Coal rail digitised on 03/08/2011 and sourced from Alpha Coal
Wiaratah Coal rail digitised on 03/08/2011 and sourced from Wratah Coal Project Concept Plan
Towns - Department of Main Roads 2009
Ports - Maritime Safety Queensland 2008
Existing Coal Mine Locations - 28/04/2008 Geological Survey of Queensland, DEEDI (downloaded from IRTM website 04/08/2011)



| Rev | Date | Revision Description | DRN | CHK | ENG | APPD |
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| 0 | 08/09/2011 | Issued for use | DH | KM | | |

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# DUDGEON POINT COAL TERMINALS PROJECT INITIAL ADVICE STATEMENT

## Figure 1.1 Major Coal Infrastructure

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0004 | Rev: 0 |
|---|---|---|

Compiled by BRISBANE INFRASTRUCTURE GIS SECTION

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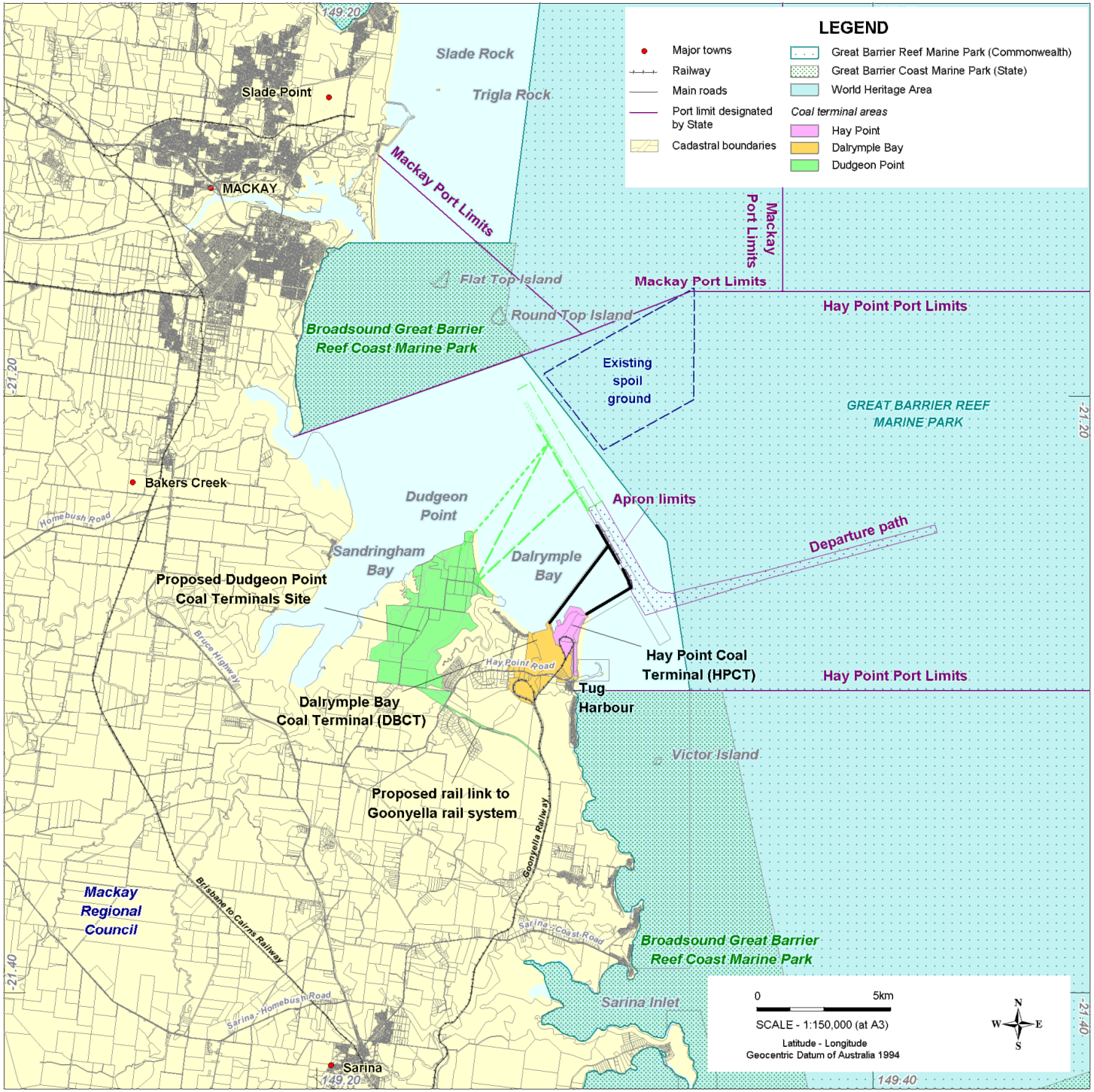



**Source Information**

Cadastral boundaries - Department of Environment and Resource Management 2011
Main Roads - Department of Main Roads 2009
Port Limits - Maritime Safety Queensland 2008
Great Barrier Reef Marine Park boundary - Commonwealth of Australia 2009
Great Barrier Coast Marine Park boundary - Department of Environment and Resource Management 2011
World Heritage Areas - Department of Environment and Resource Management 2011
Apron limits and departure path supplied by client - 26 August 2011



| Rev | Date | Revision Description | DRN | CHK | ENG | APPD |
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# DUDGEON POINT COAL TERMINALS PROJECT INITIAL ADVICE STATEMENT

## Figure 1.2 Project Locality

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0001 | Rev: 0 |
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Compiled by BRISBANE INFRASTRUCTURE GIS SECTION

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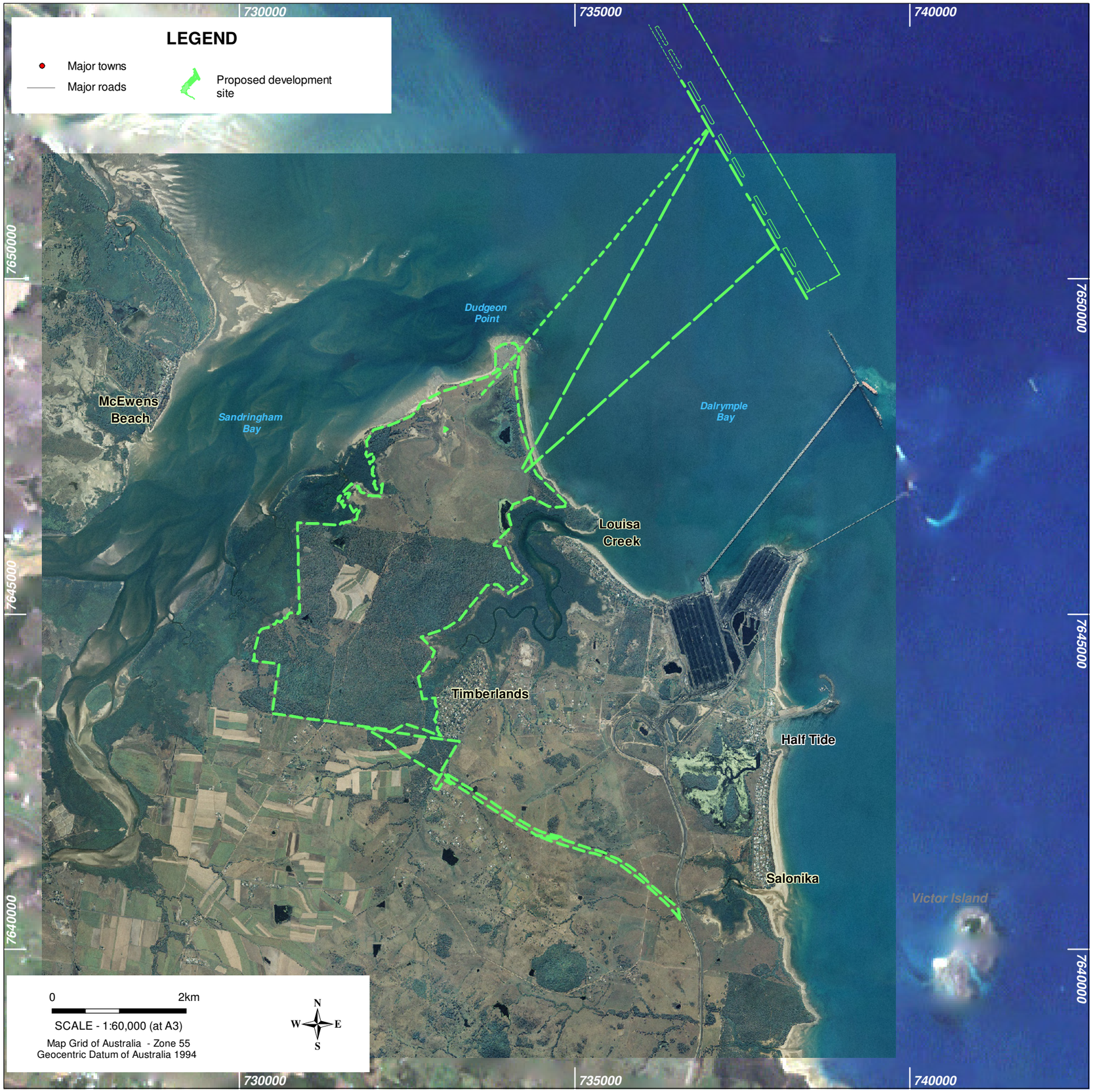



**Source Information**

Main Roads
Department of Main Roads 2009
Proposed development
Translated from Aurecon Drawing H337719-0000-00-015-0060 Rev01 dated 11 July 2011
2009 aerial photography
Sourced from Mackay Regional Council
Satellite imagery dated 14 September 2010
Supplied by the client



| Rev | Date | Revision Description | DRN | CHK | ENG | APPD |
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| 0 | 08/09/2011 | Issued for use | DH | KK | | |

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# DUDGEON POINT COAL TERMINALS PROJECT INITIAL ADVICE STATEMENT

## Figure 1.3 Project Site

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0015 | Rev: 0 |
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Compiled by BRISBANE INFRASTRUCTURE GIS SECTION

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## 1.4 Project Overview

The current capacity through both existing coal terminals in the Port of Hay Point is approximately 129 million tonnes per annum (Mtpa). BMA is currently undertaking an approved expansion of HPCT to further increase this port capacity to 140 Mtpa. The new coal terminals proposed at Dudgeon Point will add an additional 150 to 180 Mtpa capacity to the port (depending on how the stockyard is operated), to provide a total port capacity of up to 290 to 320 Mtpa. The additional export capacity will be processed through two or three separate coal terminals at Dudgeon Point.

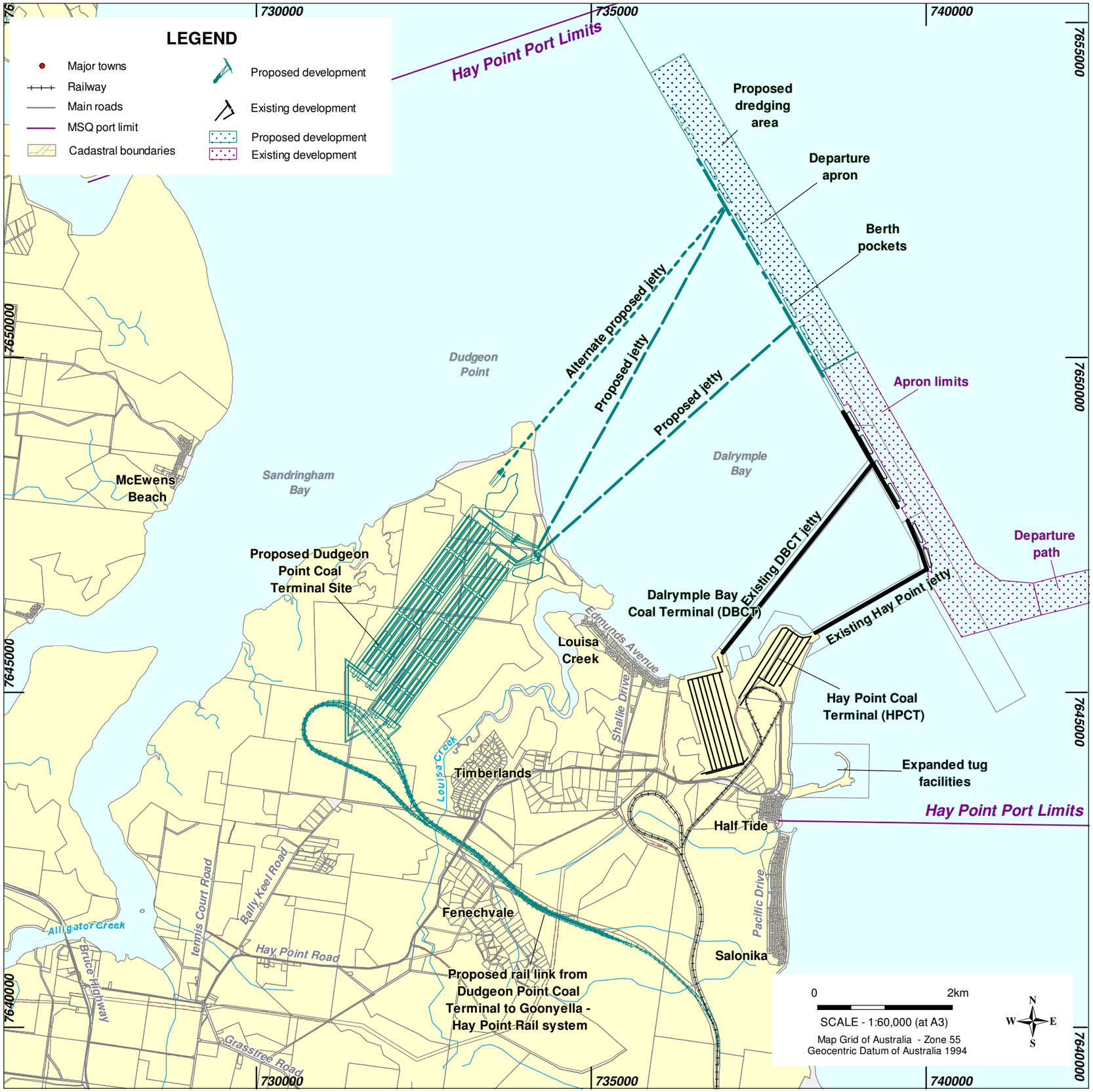
The expected total construction cost of the Dudgeon Point Coal Terminals Project, which includes new terminals at Dudgeon Point, the rail connection to Dudgeon Point and ancillary services, is currently estimated at $10 - $12 billion.

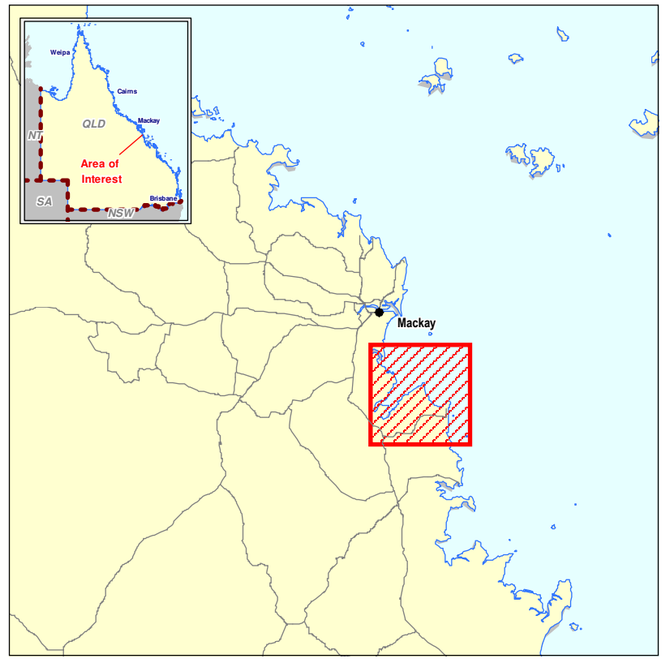
The proposed Dudgeon Point development will include the construction of the following:

- New coal export terminals at Dudgeon Point with a combined capacity of up to 180 Mtpa;
- Six rail loops and train unloading facilities;
- Offshore wharf facilities for up to eight ship berths. The offshore wharves will be connected to shore via two jetty structures;
- Expanded tug facilities to accommodate up to ten extra tug and service berths and additional line boats and service craft. A new barge facility at Dudgeon Point is also proposed;
- Creation of ship berth pockets and extension of the existing departure path to service the new berths. Work will be carried out by dredging. The volume of dredged material is currently estimated to be between 11 to 15 million cubic metres. The existing departure path may also be widened and deepened if recommended by shipping investigations;
- Land for lay down areas and support industries;
- A rail connection to the Goonyella rail system. This will include a rail overpass over Hay Point Road;
- An expansion of the existing quarantine waste treatment facilities at the port;
- Site infrastructure, such as administration buildings, warehouses, workshops, roads, phone, electricity, water supply and storage and sewage treatment.

The current concept plan for the new coal export facilities at Dudgeon Point and the dedicated railway connection are presented in Figure 1.4.

The estimated construction cost of the two new terminals alone is $8 - $10 billion. The estimated cost of supporting infrastructure (rail, berth dredging, tug harbour expansion, roads, water and sewage treatment) is in the order of an additional $2 billion, subject to outcomes of further design work.




**Source Information**

Cadastral boundaries - Department of Environment and Resource Management 2011
Main Roads - Department of Main Roads 2009
Proposed development translated from Aurecon Drawing H337719-0000-00-015-0060 Rev01 dated 11 July 2011
Proposed rail alignment - Translated from Rail Loop 6x AI E Issued 060911.dxf supplied by the client
Apron limits and departure path supplied by Client - 26 August 2011



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# DUDGEON POINT COAL TERMINALS PROJECT INITIAL ADVICE STATEMENT

## Figure 1.4 Concept Plan

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0002 | Rev: 0 |
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Compiled by BRISBANE INFRASTRUCTURE GIS SECTION

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## 1.5 Project Schedule

The development of the new port infrastructure will commence as soon as practicable after government project approvals are obtained and the proponents obtain final sign-off from their financiers. The proponents will commence preliminary design of key facilities in parallel with the EIS process. Table 1.1 below provides an indicative development schedule for the Project.

**Table 1.1 Indicative Project Schedule**

| Milestone | Timing |
|---|---|
| Draft Port Development Master Plan completed | October/November 2011 |
| Submission of Draft EIS | Mid 2012 |
| Gaining of State and Commonwealth Government approvals | Early 2013 |
| Commence construction – Dudgeon Point coal terminals and ancillary services | Mid to late 2013 |
| Commence operations of new Dudgeon Point terminal operations | 2015/16 |

## 1.6 Project Proponents

Implementation of this project is being undertaken by several parties, as shown in Table 1.2 below. NQBP is acting as the lead proponent for State and Commonwealth Government approval purposes.

**Table 1.2 Project Responsibilities**

| Project Component | Responsibility |
|---|---|
| Project master planning, environmental studies and State EIS approval | NQBP |
| Design, construction and operation of new Dudgeon Point coal terminals and approvals under the *Sustainable Planning Act 2009* where applicable to specific operational areas | Adani Mining and DPPM |
| Design and construction of rail spur to Dudgeon Point | Rail Manager to be appointed by Department of Transport and Main Roads |
| Design and construction of ancillary "common user" port infrastructure, including tug harbour expansion, roads, departure path dredging etc | NQBP |

### *North Queensland Bulk Ports Corporation Limited (NQBP)*

NQBP is the port authority under the TI Act for the ports of Hay Point, Mackay, Abbot Point and Weipa. NQBP is one of Australia's largest port authorities by tonnage throughput and more than half of Queensland's trade, by tonnage, pass through NQBP ports. NQBP has two subsidiary companies - the Ports Corporation of Queensland Limited (PCQ) and Mackay Ports Limited (MPL).

NQBP is a Queensland Government Owned Corporation and was formed as a result of the 2008 Queensland Government Review of the Queensland Port Network Structure. As an outcome of this review, NQBP became a port authority on 1 July 2009. Its subsidiaries PCQ and MPL have been managing ports in Queensland since 1994.

NQBP contact details are as follows:

- Company Name North Queensland Bulk Ports Corporation Ltd
- Address Floor 24, 300 Queen St, Brisbane, QLD. 4001
- Postal address GPO Box 409, Brisbane, QLD. 4001
- Phone number 07 3224 7088

NQBP is the owner of the proposed development site at Dudgeon Point, through its subsidiary, PCQ. As the port authority responsible for the management of the Port of Hay Point, NQBP is undertaking the port master planning for the export facilities required by its customers and is coordinating environmental studies and approvals for the proposed projects. NQBP will also provide "common user" port infrastructure for the proposed development, such as roads, water supply and dredging of the aprons and augmentation of the shipping departure path.

NQBP has an Environmental Management System externally certified to the Australian Standard AS/NZS ISO 14001: 2004. A copy of the NQBP Environment Policy is provided in Attachment 1.

### *Adani Mining Pty Ltd*

Adani Mining Pty Ltd is an Australian subsidiary of the Adani Group, which is an international company based in Ahmedebad, India. Adani Mining has a 100% interest in the Galilee Coal Tenement (EPC 1690) located in the Galilee Basin, which is now called the Carmichael Coal Project. This project has been declared a project of State significance and an EIS is currently being prepared for the project. If approved, this mine will eventually export up to 60 Mtpa of thermal coal through the ports of Abbot Point and Hay Point.

The Adani Group is a diversified conglomerate with interests in power generation and transmission, coal mining, shipping and ports. It is the largest trader of thermal coal in India. It is the developer and operator of the Mundra Port, which is one of the largest coal import ports in the world. This port handled 40 million tonne of cargo last year and is currently being expanded to 100 million tonne per annum capacity. A subsidiary of the Adani Group, Mundra Ports Pty Ltd, became the leaseholder in mid 2011 of the Adani Abbot Point Coal Terminal located in the Port of Abbot Point, where expansion to 50 Mtpa throughput has recently been completed.

Adani Mining has headquarters in Brisbane. Its contact details are as follows:

- Company Name Adani Mining Pty Ltd
- Address Level 30 AMP Place, 10 Eagle St, Brisbane, Qld.

- Postal Address GPO Box 2569, Brisbane, QLD. 4001
- Phone number 07 3223 4800

### *Dudgeon Point Project Management Pty Ltd (DPPM)*

Dudgeon Point Project Management Pty Ltd (DPPM) is a subsidiary of Brookfield Infrastructure. This new company was incorporated by Brookfield Infrastructure to progress development of a new coal terminal at Dudgeon Point. Brookfield Infrastructure manages ports in Europe as well as a diverse portfolio of rail, electricity distribution and other utilities.

DPPM has the same Board as DBCT Management and is managed by DBCT Management under a management agreement. DBCT Management is the lessee of the existing Dalrymple Bay Coal Terminal in the Port of Hay Point.

- Company Name Dudgeon Point Project Management Pty Ltd
- Postal Address c/-DBCT Management Pty Ltd
  P.O. Box 3128, Waterfront Place,
- Street Address 1 Eagle St, Brisbane, Qld. 4000.
- Phone number 07 3002 3100

## 1.7 Project Financing

The estimated total construction cost of the Project is $10 to $12 billion.

Master planning and environmental studies for development at Dudgeon Point are being initially funded equally between NQBP, Adani and DPPM. Costs for the detailed design and construction of each of the new terminals at Dudgeon Point are being funded solely by each proponent for their own terminal. NQBP will fund development of common port infrastructure on a commercial basis, with capital and operating costs funded by the proponent. The development of the rail spur line will be funded by the designated Rail Manager.

The financing of the works will be determined by each proponent as part of their Bankable Feasibility Studies, which will be carried out after project environmental approvals are obtained.

## 1.8 Need for the Project

In recent years, demand for both coking coal (used in the manufacture of steel) and thermal coal (used in power stations as an energy source) has increased significantly globally. China and India in particular are rapidly industrialising and developing, which is contributing significantly to a high demand for energy and coking coal.

Although coal is only one of the energy sources being used by these overseas countries, it plays an important role in their energy mix because coal is readily available from many exporting countries and coal fired power stations are well established, safe and reliable technology, as well as being an affordable source of energy (World Coal Association, 2011). Global coal-fired electricity generation is expected to increase at an average annual rate of 2.7% to the year 2030 (ABARE, 2010).

Because of large coal reserves close to the coast and its reliability as a supplier of coal, Australia has become the world's largest coal exporter. Bowen Basin coal is a favoured product because of its low sulphur and nitrogen content, as well as its high energy content, which results in lower $CO_2$ production upon combustion than coals from some other countries. Recent growth in demand for both coking and thermal coal and the expectation that this high growth in demand will continue has resulted in a number of planned mine expansions and the development of new mines in Queensland.

ABARE (2010) reported that Australia was experiencing record levels of coal exploration and at the end of 2009, there were 35 proposed new mines and expansions at various stages of development. Australia's coal exports are projected to increase at an annual average rate of 2.4% to the year 2030 (ABARE, 2010). However ABARE (2010) noted that "Australia's ability to meet the increased demand for coal exports will require matching expansion of coal infrastructure, including rail and port capacity."

Coal in Queensland is exported through three main coal ports- Gladstone, Abbot Point and Hay Point. All three coal ports are undertaking significant port expansions to meet industry demand for expanded port infrastructure. The Port of Hay Point is the closest port to many of the mines in the Bowen Basin coalfields. NQBP has received initial requests of 180 Mtpa of export capacity at Dudgeon Point.

## 1.9 Project Economic Benefits

The current estimate of the total project cost is $10 to $12 billion. This is composed of an estimated cost of $8 to $10 billion for the Dudgeon Point Coal Terminals plus up to $2 billion for development of the rail spur to Dudgeon Point, the rail loops at Dudgeon Point, expansion of the Tug Harbour, port dredging, roads and supporting infrastructure.

A peak construction workforce of around 5000 (range of 4000 to 6000) is expected for the construction of the new terminals and offshore wharves, the railway spur and supporting infrastructure. The construction period expected is three years and construction is expected to commence in 2013. Using the commonly applied 'four times' indirect employment multiplier, total jobs created during the construction period could be as high as 25,000, with the majority created in the Central Queensland coastal region.

Construction of the terminals will be funded by the two proponents – Adani Mining and DPPM. Both proponents propose to undertake competitive tendering for contracting the construction of the proposed works. Local industries will be encouraged to tender for these works to maximise the value of the project to the region. While the majority of the workforce will be located in the region, principally at the port, it is expected that a number of engineering contracts will involve work carried out in Mackay and Townsville and possibly Brisbane. Due to the size of the project, it is expected that some speciality components such as stacker reclaimers will be constructed overseas and then assembled in Australia. The exact mix of local versus overseas procurement cannot be determined until tenders are called and assessed.

During the ongoing operation of the terminal, an additional 800 operational and maintenance staff will be employed or contracted at the terminals. These workers will live locally in Mackay, Sarina or communities around the port.

The project will provide a major economic boost to the region generated by the workers brought into the region, with flow-on effects from new housing and retail spending.

This project will provide essential transport infrastructure for the coal industry. Without supporting infrastructure such as port facilities, planned new mines or mine expansions in the Mackay hinterland will not be able to proceed. The mining of coal is a major source of income for the State through royalties, providing necessary funding for social programs such as schools, health care and hospitals etc. Royalties flowing to the State of Queensland from the additional coal exports facilitated by this project have been estimated at over $2 billion per year, commencing with terminal operation in 2015 / 2016. The Commonwealth Government will receive additional income through the Minerals Resource Rent Tax.

## 1.10 Regulatory Approvals Process

Due consideration of the likely environmental impacts of the proposed development under various Commonwealth, State and Local legislation, guidelines and policies is a project requirement. This section identifies key legislation and other standards and guidelines relevant to the Project.

### *Commonwealth*

***Environment Protection and Biodiversity Conservation Act 1999***

At the Commonwealth level, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) applies to those actions that are likely to have a significant impact on matters of National Environmental Significance (NES). Matters of NES include World Heritage properties, National Heritage List places, wetlands listed under the Ramsar Convention as wetlands of international importance, nationally threatened species and ecological communities listed under the EPBC Act, migratory species listed under the EPBC Act, the Great Barrier Reef Marine Park and Commonwealth marine areas. The Project will be referred to the Federal Environment Minister to seek a determination on the potential impacts of the Project on matters of NES, and whether the Project, or any of its components, would constitute a 'controlled action', and therefore require formal assessment under the EPBC Act.

The Australian Government has a bilateral agreement in place with the Queensland Government which accredits the environmental assessment process under the SDPWO Act. This allows a single assessment process to occur, thus avoiding duplication. The assessment and approval process is outlined in Figure 1.5.

***Great Barrier Reef Marine Park Act 1975***

If the Project requires works or activities to be done within the Great Barrier Reef Marine Park (GBRMP) that are not authorised under a zoning plan, a permit under the *Great Barrier Reef Marine Park Act 1975* will be required.

***Environment Protection (Sea Dumping) Act 1981***

The *Environment Protection (Sea Dumping) Act 1981* prohibits ocean disposal of waste materials considered harmful to the marine environment, and regulates the permitted dumping of wastes at sea to ensure environmental impacts are minimised. A permit may be required under this Act to authorise the placement of any dredged material to an offshore spoil ground within Australian Waters.

### *Native Title Act 1993*

The *Native Title Act 1993* (NTA) provides for the recognition and protection of Aboriginal and Torres Strait Islanders' rights and interests over their land and waters. It establishes ways in which future dealings affecting Native Title may proceed and provides a mechanism for determining native title claims. Native Title agreements may be required to address native title rights over land subject to Native Title.

## *Queensland State Government*

### *Significant Project Declaration and EIS Process*

NQBP is seeking to have the Project declared a 'significant project' under the SDPWO Act and to follow the EIS process defined by this Act. An EIS provides the general public and relevant stakeholders with information on the need for the Project and its potential social and environmental effects. An EIS provides a process for demonstrating how a project has been planned and can be managed to protect and enhance environmental and social values. It is only following thorough impact assessment and consultation, required under the EIS process that NQBP and the other two proponents involved in the project will be able to move forward with making specific applications for project approvals. This process is shown diagrammatically in Figure 1.5 below.

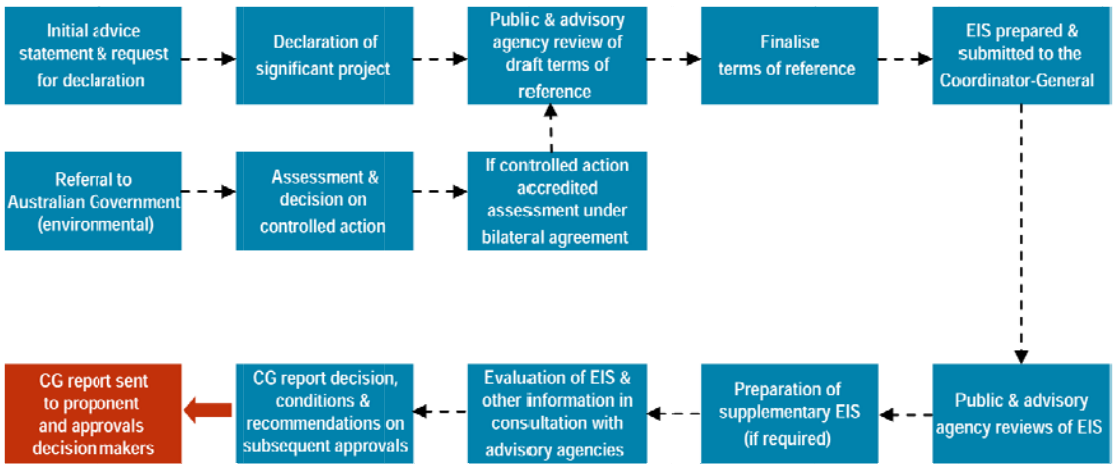



**Figure 1.5 EIS process for a state significant project, for which an EIS is required**

Following the release of the CG assessment report, the Commonwealth, under the bilateral process, assesses the State EIS and the CG report findings with a view to approving, approving with conditions, or not approving the controlled action.

### *Development Approvals*

Following the completion of the above EIS process, a series of component specific development applications under various Acts would be made by the terminal development proponents to relevant Commonwealth and State Government bodies, NQBP and the Mackay Regional Council. The assessment of such applications is informed by the findings of the Coordinator-General's report.

It is expected that the Project will require the following key approvals:

- Environmental Authorities for a number of environmentally relevant activities (ERAs) under the *Environmental Protection Act 1994*; and
- Material Change of Use, Building, Operational Works and other development and environmental approvals under the TI Act and the *Sustainable Planning Act 2009.*

The Project may also be subject to the approval requirements of other Queensland State acts, policies and regulations including:

- *Aboriginal Cultural Heritage Act 2003*
- *Building Act 1975*
- *Queensland Heritage Act 1992*
- *Water Act 2000*
- *Land Act 1994*
- *Vegetation Management Act 1999*
- *Land Protection (Pest and Stock Route Management) Act 2002*
- *Soil Conservation Act 1986*
- *Coastal Protection and Management Act 1995*
- *Marine Parks Act 2004*
- *Fisheries Act 1994*
- *Nature Conservation Act 1992*
- *Transport Operations (Marine Pollution) Act, 1995*
- *Dangerous Goods Safety Management Act, 2001*
- *Environmental Protection (Noise) Policy 2008*
- *Environmental Protection (Air) Policy, 2008*
- *Environmental Protection (Water) Policy, 1997*
- *Environmental Protection (Waste Management) Policy, 2000*
- *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils.*

### *Port Authority and Local Government Approvals*

Primary land use planning approvals for the development of the Dudgeon Point Coal Terminals and rail corridor would be sought through the applicable land use planning instrument, the Land Use Plan for the Port of Hay Point.

For any development not on Strategic Port Land, the Sarina Shire Planning Scheme administered by the Mackay Regional Council will be the governing planning scheme.

### *Whitsunday Hinterland and Mackay Regional Plan*

The Whitsunday Hinterland and Mackay (WHAM) Regional Plan 2015 provides a framework for guiding growth and development in the region over the next 15-20 years. Relevance of the Plan to the Port of Hay Point is the achievement of goals in relation to ecologically sustainable development and economic development, infrastructure and transport. The Port of Hay Point (including Dudgeon Point) has been identified as a key economic area and major transport hub. The Port of Hay Point is noted to be a major port and industry area and Dudgeon Point has been identified in the plan as a potential industry precinct.

### *Mackay, Isaac and Whitsunday Regional Plan 2011-2031*

A draft *Mackay, Isaac and Whitsunday Regional Plan 2011-2031* was released in May 2011 by the Department of Local Government and Planning. These three regional councils have experienced accelerated growth in recent years, particularly in the mining and industrial sectors. The Regional Plan was developed in line with the *Sustainable Planning Act 2009* and the focus is to manage and plan for sustainable development within the region over a 20-year planning horizon. The Queensland Government has adopted a statutory approach to planning in response to the fast-paced growth that has occurred since the latest non-statutory plan was released in 2006.

# 2. Project Description

## 2.1 Existing Operations

There are currently two separate coal export terminals in the Port of Hay Point; the Dalrymple Bay Coal Terminal (DBCT) and the Hay Point Coal Terminal (HPCT). The current capacity through both existing coal terminals in the Port of Hay Point is 129 Mtpa. An expansion of HPCT currently underway will increase this port capacity to 140 Mtpa.

DBCT is the larger of the two terminals with a nameplate capacity of 85 Mtpa. The terminal is leased from the State Government by DBCT Management Pty Ltd. It is a multi-user facility that services nineteen coal mines in the Northern Bowen Basin coalfield area. Coal arrives at the terminal by rail and is unloaded through three rail unloading stations. Coal is conveyed to a stockyard of approximately 67 hectares with eight stockpile rows. Reclaimer machines use a bucket wheel to take coal from the stockpiles, which is transferred by conveyors via surge bins to three offshore ship loaders. DBCT has four offshore berths connected by a 3.8 kilometre jetty to shore. The size of ship and their cargoes using the terminal vary greatly in size, from Handimax (nominally 20,000 deadweight tonnes) to large Capesize vessels (nominally 200,000 deadweight tonnes). Ship loading peak rates at DBCT are between 7200 to 8650 tonnes per hour (tph).

HPCT is operated by Hay Point Services Pty Ltd for BMA (BHP Billiton Mitsubishi Alliance). HPCT currently has a nameplate capacity of 44 Mtpa and is currently being expanded to 55 Mpta. The jetty at HPCT is 2.2km long and has two berths, with a third berth under construction. There are two ship-loaders on the HPCT wharves with a peak ship loading caacity of 6,000 tph each.

The Tug Harbour servicing the port is located at Half Tide, to the south east of HPCT. The marine facilities at the Tug Harbour provide six berths that currently service five tugs, with the sixth berth used as a service berth for tug maintenance. The Tug Harbour has cyclone moorings for five tug boats and three line boats (or smaller vessels). The onshore facilities at the tug harbour include an administration building, amenities building, covered car park structure and fuel bunkering facilities. The Tug Harbour area also includes a public boat ramp which has been provided by Maritime Safety Queensland on NQBP land.

NQBP provides ships visiting the port with Quarantine Waste Disposal Services under strict AQIS guidelines. Garbage from foreign ships is taken to the port's quarantine waste treatment facilities on Horyu Maru Drive at Hay Point and sterilised in a high temperature steam autoclave. After sterilisation, it is disposed in a licensed council landfill.

## 2.2 Port Master Planning

In order to meet the growing demand for coal exports through the port, NQBP, in conjunction with the two project proponents, has been preparing a Development Master Plan to guide development of the Port of Hay Point over the next five to ten years. The Plan will provide the location and layout of the required new coal terminals and associated infrastructure including offshore facilities. In January 2011, NQBP engaged consultants Aurecon to prepare the Development Master Plan. In the preparation of this Plan, the consultants looked at a number of possible sites to meet the projected project needs. Site selection studies have identified NQBP's 1400 hectare Dudgeon Point site as the most suitable site for new coal terminal development in the Port. Studies also included a review of options for the rail

connection to the Goonyella system and work undertaken has confirmed that the existing transport corridor to Dudgeon Point is the recommended location for rail to the project site with some minor deviations to reduce potential environmental effects (refer Section 2.3). NQBP owns this corridor, which is 70-90 metres wide.

The Master Plan is expected to be published in October / November 2011.

## 2.3 Proposed Dudgeon Point Coal Terminals

An overview of the proposed Dudgeon Point Coal Terminals Project is provided in Section 1.4. A detailed description is provided below.

### *Onshore Infrastructure*

The new terminals at Dudgeon Point are expected to be similar in design and operation to the existing terminals operating in the port. Coal will arrive at the terminals by rail and will be unloaded through bottom dump rail unloading stations. Coal will be transferred to stockyards via conveyors and put into stockpiles using stacking machines. Reclaimer machines will take coal from the stockpiles and will convey it via surge bins to offshore ship loaders.

There is expected to be two terminals on the Dudgeon Point site. The combined capacity of the terminals at Dudgeon Point is expected to be 150 to 180 Mtpa, dependent on how the stockyards of the terminals are operated. For project environmental approval purposes, approval is being sought for a combined capacity of the two new terminals of 180 Mtpa.

Adani and DPPM are providing contracted user requirements for the site in late 2011. If these two companies cannot prove an immediate need for the full site capacity of 150 to 180 Mtpa, then the remaining land would be allocated to a third proponent, who would be selected through a tender process. All of the available development area at Dudgeon Point will consequently be utilised.

The nominal combined stockyard volume at Dudgeon Point is 8.3 million tonnes of coal, which represents a ratio of stockyard volume to annual throughput of 5.0% to 5.5%. This high stockyard ratio is to ensure the stockyards can operate efficiently within the Goonyella coal chain by ensuring sufficient storage area to prepare cargoes from several mines for shipping.

Detailed design of their terminals will be carried out by the individual proponents following finalisation of the Port Development Master Plan and the design work will determine the optimum equipment sizes and loading rates for each terminal. The expected equipment sizes in the new terminals at Dudgeon Point are as follows:

- Train sizes: 9,600 tonnes capacity with a train set length of 2.03 km long. Double length trains (i.e. up to four kilometres long) may access the site at a future time.
- Train Type: Electric, although diesel may be occasionally used.
- Train unloading rate: up to 9000 tph.
- Reclaiming rate: 8000 to 10,000 tph.

The terminals will operate 24 hours a day, seven days a week.

### *Marine Infrastructure*

The proposed terminals will service a range of ship sizes up to Capesize vessels. Capesize vessels are specialised bulk carriers over 80,000 deadweight tonnes and the typical Capesize vessel is 274m x 48m x 16m and 175,000 deadweight tonnes. The new offshore facilities will be designed to handle Capesize vessels up to 250,000 dead weight tonnes. The ship loading rate of the ship loaders will be 8000 to 10 000 tph.

In 2009/10, there was 99.5 Mtpa of coal exported through the Port of Hay Point with 1121 ships using the port. The additional 150 to 180 Mtpa of exports from Dudgeon Point would be expected to increase ship numbers by around 2000 ships per year. Ship numbers through the port would be expected to be in the order of 3000 to 3500 per year once all terminals in the port are operating at close to their capacities.

Coal will be conveyed from the onshore facilities along conveyors on a trestle jetty structure to ship loaders on the offshore wharves. The offshore wharves will use a design structure similar to existing offshore wharves in the port. There will be up to eight offshore ship berths required for the project.

At this stage, two of the eight berths are assumed to be located within an existing offshore lease held by DBCT Management. Use of this area is subject to negotiation with DBCTM and its financiers over coming months. If these two berth areas are not available to the project, two of the eight berths will need to be north-west of the planned berths and the jetty structures moved accordingly to remain in the centre of the offshore berths. The site concept plan in Figure 1.4 shows these potential berths for planning purposes. The EIS will present the final location of the berths and the associated jetty structures.

The existing departure path and apron areas will be extended by dredging to service the new ship berths. Berth pockets will be dredged to around 20.0m water depth (RL -20.0m LAT) and the aprons to nominally 14.9m water depth. Current seabed depths are 10- 12 metres.

The existing departure path may also be widened and / or deepened by dredging. The widening would be to accommodate the increased number of ships. Deepening would be to accommodate a higher proportion of larger ships that may be tidally restricted by water depths, reducing port efficiency. The need for the widening or deepening will be determined through shipping studies. The volume of dredging material from any widening and / or deepening of the departure path cannot be estimated until shipping studies are completed. A preliminary estimate of the volume of material to be dredged for the departure path extension and berth pockets alone is 11 to 15 million cubic metres. Final volumes will be presented in the EIS.

There is an existing spoil ground in the port that is located in the Great Barrier Reef Marine Park (refer Figure 1.2). Alternative locations for the dredge spoil disposal will be assessed as part of the EIS environmental investigations and a preferred approach identified. This study on spoil locations will consider:

- Offshore disposal in the existing spoil ground in the GBR Marine Park;
- The possibility of establishing a new offshore spoil disposal site outside the marine park;
- The potential for beneficial use in a reclamation; and
- Disposal on shore.

The site location assessment will examine the presence of environmental constraints such as seagrass, other flora and fauna values, and sensitive marine environments at each location, as relevant. It will also consider the site proximity to the Great Barrier Reef Marine Park, the Sandringham Bay Conservation Park, and the Mount Hector Conservation Park.

The existing Tug Harbour at Half Tide will be expanded to accommodate additional tugs. There are six existing berths and ten extra tug berths will need to be provided. Berths for additional line boats will also be required. The port master planning is currently assessing whether all of these tug berths can be accommodated by expansion of the existing tug harbour. Options such as locating some tugs in the nearby Port of Mackay are being investigated and the proposed solution will be presented in the Port Development Master Plan and EIS. Expansion of the Tug Harbour will require dredging of the new tug berth areas.

A barge ramp is to be constructed at Dudgeon Point to allow import of large equipment by water. The location of the barge ramp will be determined by the master planning studies currently underway.

## *Ancillary Infrastructure*

### *Rail Connection to the Goonyella Rail System*

A key element in the supply chain to the new coal terminals at Dudgeon Point is an effective rail link from the existing Goonyella rail system to the port. NQBP owns a land corridor approximately 6 km long and approximately 70-90m wide which runs adjacent to the Fenechvale Estate area to Dudgeon Point.

This land is zoned as a Transport Corridor under the Port of Hay Point Land Use Plan (July 2010). Recent master planning studies have recommended a rail corridor that generally follows NQBP's land holdings. There are some slight deviations from the existing land holdings to avoid remnant vegetation and to provide additional separation distances from residences at Fenechvale.

Trains will be 9600 tonne trains, approximately 2 km long, similar to those that service the existing coal terminals in the port. QR National has advised that it is investigating the efficiency benefits in the future of doubling the length of trains (4 km and 20,000 tonne cargo) using the Goonyella rail system and if this occurs, the longer trains may also service the Dudgeon Point terminals.

The Dudgeon Point rail connection will be designed and constructed by a Rail Manager, who has yet to be appointed by the State Government. QR National is the Rail Manager for the Goonyella system.

Trains will operate 24 hours a day, 7 days a week. To support the export capacity of up to 180 Mtpa, there will be an average of 40 - 50 trains per day going both to and from the Dudgeon Point terminals.

The proposed rail route through the Fenechvale area is hilly and the construction of the line will involve significant cut and fill operations. Cuts of up to 25 m have been identified in some areas. To accommodate the battered slopes for these cuts, around 30 ha of additional land along the corridor will need to be purchased by the Rail Manager. No houses will be affected by the land requirements as the cuttings occur in pastoral areas.

To avoid traffic conflicts where the rail line passes over Hay Point Road, the master planning studies undertaken to date have recommended that the rail be located on an overpass over the road. A clearance of approximately 7.5 m over the road has been proposed. This elevation will provide the low gradient required on the line into the dump stations. At this road crossing, there will be one arrival rail

line per dump station plus one or two departure lines, resulting in seven to eight rail lines over Hay Point Road.

### *Roads*

The main access to the existing coal terminals at Hay Point is via Hay Point Road. Access to NQBP's land at Dudgeon Point is currently via Bally Keel Road which connects to Hay Point Road. It is proposed to construct a new access road to Dudgeon Point adjacent to the proposed rail connection. The new road would join Hay Point Road in the vicinity of its junction with Benson's Road. Bally Keel Road would only be used for site access during the project construction phase until the new port access road is constructed.

The capacity of existing transport infrastructure to support the Project, including roads, rail etc will be assessed in the detailed planning of the Project with details to be provided in the EIS. A particular focus of attention will be traffic safety studies of the following intersections to determine any upgrades required to maintain safe traffic conditions:

- intersection of the new port entry road and Hay Point Road; and
- intersection of Hay Point Road and the Bruce Highway.

### *Power*

There is currently no power supply infrastructure in the Dudgeon Point area. However, the wider Bally Keel/Hay Point area is serviced via the existing Powerlink bulk supply substation (Alligator Creek substation – 132 kV) on the western side of the Hay Point Road/Bruce Highway intersection.

Power to the Dudgeon Point site will be from the mains grid. The route of the power supply to Dudgeon Point is being investigated in master planning studies being undertaken and the recommendations will be presented in the EIS.

The potential for generation of "green" power on site will be investigated as part of the environmental investigations for the EIS. Green power options to be studied will include solar, wind and wave energy.

### *Water*

Water for industrial use will be gained from stormwater capture on site and subsequent water recycling. Water storage facilities for site operational uses will be constructed on site.

Supplementary industrial water will be supplied via the port's existing water supply pipeline and storage dam at Wetzel's Road. This storage dam is of clay core construction with a 300 ML capacity.

Potable water for staff drinking and showering will be obtained from the Mackay Regional Council. This will be either trucked in or conveyed by pipeline.

### *Waste*

Sewage from each terminal site will be treated in an on-site sewage treatment plant. Discharge limits will comply with the Queensland Department of Environment and Resource Management (DERM) requirements. Treated waste water will be collected on site in the stormwater collection dams and reused on site for industrial purposes. During the construction phase, either package treatment plants

will be used to treat sewage, or pump facilities will be used for transport of the waste to a Council treatment plant.

Solid waste from the terminal sites will be collected by a licensed contractor and disposed in a licensed council facility during both the construction and operational phases. Waste volumes will be minimised by recycling products such as cabling, paper, cardboard, steel, and plastics.

Quarantine waste from ships using the port will be collected under AQIS protocols and taken to the port's quarantine waste treatment facility. The existing treatment facility is proposed to be doubled in capacity to handle the doubling in the number of ships using the port. Quarantine waste is currently sterilised with steam under high temperature and pressure and then disposed to a licensed council facility.

#### *Telecommunications*

Land phone lines and mobile phone services will be extended to the area. The recommended methods to achieve this will be determined through master planning studies and will be documented in the EIS.

#### *Buildings*

Administration buildings, warehouse buildings, workshops and staff facilities will be built at the new terminals. Office buildings will be required to incorporate appropriate energy and water reduction measures and other sustainability measures.

## 2.4 Workforce

A peak construction workforce of around 5000 (range of 4000 to 6000) is expected for the construction of the new terminals and offshore wharves, the railway spur and supporting infrastructure. The construction period will be around three to four years, with works commencing in 2013. The majority of the workforce will be located in the region, principally at the port, however it is expected that a number of engineering contracts will involve work carried out in Mackay and Townsville and possibly Brisbane.

Due to the size of the project, workers will need to be sourced both from the region and nationally. Any worker shortage may require some workers to be brought in from overseas, however it is the preference of the proponents to use local workers wherever possible.

It is expected that many of the construction workers will either already live in the area or will rent houses and units in the Mackay or Sarina areas. The impact on housing supply and demand will be assessed in the EIS and management measures will be identified.

Due to the large workforce, a construction accommodation camp is expected to be required to support the project. This camp is expected to house up to 1000 workers at its peak. The proposed location for the camp will be identified in the EIS. The camp will provide buses for workers to and from the construction site to minimise traffic to the Hay Point area.

During the ongoing operation of the terminal, an additional 800 operational and maintenance staff will be employed or contracted at the terminals. It is expected that these workers will live locally, in Mackay, Sarina or communities near the port.

# 3. Existing Environment and Potential Impacts

This section provides an overview of the nature and extent of the potential environmental and socioeconomic impacts that may be associated with the construction and operation of the proposed Project. A detailed assessment of Project impacts will be provided in the EIS.

## 3.1 Biogeographical Setting

The Mackay region has a tropical monsoonal climate with distinct wet and dry seasons. The wet season occurs between December and March and tropical cyclones regularly pass within 150km of Mackay during this period.

Average annual rainfall in Mackay is approximately 1,585mm. A large proportion of the annual rainfall is received during the summer months, with the driest months being August and September. Temperatures range between 13°C to 25°C in winter and 23°C to 30°C in the summer months. Winds are predominantly from the south-east, averaging 5 to 6 metres/second in this direction (GHD 2003).

The Port of Hay Point locality lies within the Sarina-Proserpine Lowlands (CQC2) subregion of the Central Queensland Coast bioregion. The subregion is characterised by alluvial and estuarine sediments interspersed with acid intrusive low hills and bluffs in the east, and foothills and low ranges on intermediate to basic volcanics and metasediments in the west. Before the flatter areas were cleared for sugarcane cultivation and pastures, these areas supported paperbark and eucalypt woodlands. The hillier parts support savanna eucalypt woodlands and rainforests (Young in GHD 2010a).

The Port of Hay Point area includes a number of terrestrial, riparian and marine communities. Specific areas of conservation significance adjacent to the Port area include the Great Barrier Reef Marine Park and World Heritage Area, Sandringham Bay, Mount Hector Conservation Park and Lake Barfield. These areas are valued for their ecological, scenic and recreational value, as well as economic value to local fisheries as breeding and nursery grounds for a range of marine organisms (NQBP 2010).

## 3.2 Terrain

### *Existing Environment*

#### *Geology*

The 1:250,000 Geological Map for Mackay indicates that the geology of Dudgeon Point site and rail corridor is dominated by two main geological units: Quaternary Alluvium (Qa) and Campwyn Beds (D-Cc). The Quaternary Alluvium (comprised of sand, silt, mud, clay and gravel) dominate the low-lying mudflat areas. The Campwyn Beds belonging to the Middle Devonian-Early Carboniferous period are comprised of a succession of andesitic and rhyolitic flows and pyroclastics, mudstone, siltstone, lithic arenite, limestone, oolitic limestone and conglomerate (GHD 2003). There is a third geological unit, Tertiary Volcanic (Tv), located at the mouth of Louisa Creek.

#### *Topography*

The Dudgeon Point site is mostly flat to gently undulating with slopes ranging from 0-5%. The topography of the site is more varied to the south, with numerous minor ridge systems and incised

drainage paths where some slopes exceed grades of 10%. The highest part of the site lies in the south western corner with an elevation exceeding RL 70 m. The coastal boundary of the site is bordered by broad low lying coastal wetlands, salt flats and mudflats mostly below RL 5 metres. A prominent dune system and associated freshwater wetland, extends along the east side of the site between the Dudgeon Point peninsula and the Mt Hector National Park Reserve to the south.

The rail corridor is situated predominantly within a landscape of rolling coastal hills. The corridor, which is 70-90 metres wide, crosses three small waterways as well as small coastal hills 40-50 metres in elevation.

***Soils***

Based on the underlying geology, five broad soil groups are likely to occur in the Project area. These are:

- Sedentary soils – these are mainly shallow stony acidic brown lithosols;
- Ferric, sodic, yellow chromosols;
- Ferric, mottled, subnatric, yellow grey sodosols;
- Humose, extratidal hydrosols; and
- Straticrudosols.

These soil groups present a range of physical, chemical and nutrient characteristics which will influence how these soils will be used and managed on site, particularly during project construction.

***Acid Sulphate Soils***

DERM mapping of acid sulphate soils (ASS) in the Hay Point - Armstrong Beach area indicates that ASS occur in the tidal lands. This mapping also found that potential acid sulphate soils (PASS) underlie the mangrove forests at a depth of less than 0.5m and between 0.5 to 1m depth under the salt pans within these tidal lands. Soil samples previously taken at DBCT (URS, Nov 2000) indicated that soil material below 5m AHD has a low potential for acid generation.

***Strategic Cropping Land***

The project site is located within an area which may contain Strategic Cropping Land. Soils in the project area will be assessed to determine if they meet the Coastal Queensland zone criteria for classification as strategic cropping land. The publication *Protecting Queensland's Strategic Cropping Land - Proposed criteria for identifying strategic cropping land, 2011* sets out these criteria.

## *Potential Impacts*

The construction of the coal terminals and associated infrastructure will result in the disturbance to the landform and soil resources at the project site. Soil studies will be undertaken to confirm existing soil characteristics and the potential impact the project may have on soil resources. Erosion will be managed through the implementation of appropriate environmental management measures. A Sediment, Drainage and Erosion Control Plan will be developed to mitigate and control sediment movement onsite.

An assessment of the existing land contamination level (if any) will also be undertaken to specifically identify key areas of potential contamination that may pose a risk to the environment if disturbed by project construction activities.

In areas where ASS and PASS soils occur and which will be potentially disturbed by project activities, an ASS assessment will be completed in accordance with the *Queensland Acid Sulphate Soil Technical Guidelines*. An ASS management plan may be required to be developed in order to satisfy the *State Planning Policy for Planning and Managing Development Involving Acid Sulphate Soils (SPP 2/02)*, prior to the commencement of disturbance.

## 3.3 Land Tenure, Land Use and Zoning

### *Existing Environment*

The majority of the 1400 ha Dudgeon Point site is held in freehold tenure by PCQ, which is a wholly owned subsidiary of NQBP. Six small land parcels at Dudgeon Point are held as term leases by PCQ. Areas of seabed located offshore from Dudgeon Point, including where infrastructure for the proposed Project may be located, is owned by the State of Queensland, with variable tenure arrangements held by NQBP over those areas. The land likely to be used for the rail corridor is generally owned in freehold title by NQBP, with negotiations required with other local landowners regarding areas where the existing corridor may need to be widened.

The Dudgeon Point land areas, the rail corridor and the offshore areas (within which the Project infrastructure is likely to be located), are within the area of the Port of Hay Point Land Use Plan, and as such the Land Use Plan is the relevant planning document for the management of the land use of the Project area (refer Figure 3.1). The central part of the Dudgeon Point land area is designated for 'Port Handling Activities', and this is surrounded by designations of 'Buffer' and 'Environmental Protection'. The offshore areas are designated for 'Access and Port Infrastructure'. The rail corridor is designated as 'Transport Infrastructure'. The proposed location of the offshore jetty and berths are within the Port of Hay Point port limits. Areas surrounding the Project area (and under the control of the Sarina Shire Planning Scheme) are predominately zoned for 'Rural', 'Rural Residential' and 'Open Space' uses.

Approximately half of the Project site has been previously cleared of vegetation and is used for cattle grazing, with some cane farming and pine plantation management historically undertaken.

The rail corridor is comprised of coastal lowlands and elevated land which is currently used for cattle grazing on native pasture. The lands in the vicinity of the corridor are characterised by rural uses to the north, east and southeast. Land to the west and south west of the corridor is characterised by large lot rural residential development.

The proposed port infrastructure will be located outside of the bounds of the Great Barrier Reef Marine Park, as identified in Figure 1.2. Other works, such as departure path dredging and spoil dumping, may impinge on the GBRMP.

The Mount Hector Conservation Park (adjacent to the Project site) is listed on the Australian Heritage Commission's Register of the National Estate due to its geological origin, flora, fauna and aesthetic values. The Park is gazetted under the Queensland *Nature Conservation Act 1992* (NC Act).The Park is under the joint trusteeship of the Mackay Regional Council and DERM. The nearest port infrastructure will be around 1 km away from the park boundary.

### *Potential Impacts*

The construction and operation of the Dudgeon Point coal terminals and associated rail corridor will result in a change in land use from the existing rural activities to major industry. However the change of use is generally consistent with the relevant land use planning instrument (Port of Hay Point Land Use Plan) for the Project area, and with the land use of adjacent areas at the HPCT and DBCT.

The EIS will assess the following:

- compatibility of the proposal with surrounding land uses;
- possible impacts on surrounding land uses and human activities;
- relationship to existing planning objectives and controls for study area including Port of Hay Point Land Use Plan and the Sarina Shire Council Planning Scheme as appropriate.

## LEGEND

- Major towns
- Major roads
- Railway
- Proposed development
- Existing development
- Proposed development
- Existing development

*Land Use Designations*

- Environmental protection
- General buffer
- Port handling activities
- Port related support
- Transport infrastructure
- Wildlife corridor

730000 735000 740000

7655000 7650000 7645000 7640000

McEwens Beach

Sandringham Bay

Dudgeon Point

Dalrymple Bay

Existing departure apron

Dalrymple Bay Coal Terminal (DBCT)

Proposed Dudgeon Point Coal Terminal Site

Louisa Creek

Existing DBCT Stockyard

Hay Point Coal Terminal (HPCT)

Timberlands

Hay Point Road

Louisa Creek

Extended tug facilities

Half Tide

Existing DBCT Rail loops

Fenechvale

Salonika

Proposed rail link to Goonyella rail system

Victor Island

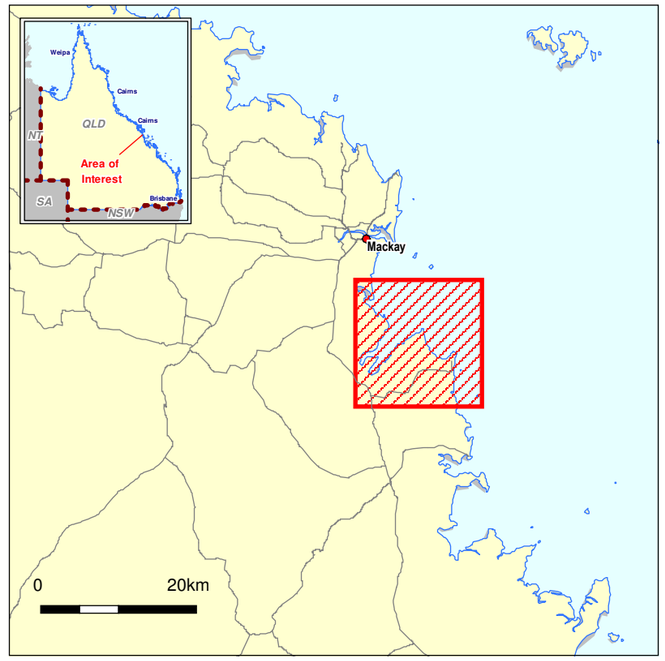
Alligator Creek

0 2km

SCALE - 1:60,000 (at A3)

Map Grid of Australia - Zone 55
Geocentric Datum of Australia 1994

N W E S




**Source Information**

Main Roads - Department of Main Roads 2009
Proposed development - Translated from Aurecon Drawing H337719-0000-00-015-0060 Rev01 dated 11 July 2011
Proposed rail alignment - Translated from Rail Loop 6x AI E Issued 060911.dxf supplied by the client
Apron limits and departure path supplied by client - 26 August 2011
Land use zones - supplied by client 26 August 2011



| Rev | Date | Revision Description | DRN | CHK | ENG | APPD |
|---|---|---|---|---|---|---|
| 0 | 08/09/2011 | Issued for use | DH | KM | | |

WorleyParsons resources & energy

NQBP North Queensland Bulk Ports Corporation

*North Queensland Bulk Ports Corporation*

# DUDGEON POINT COAL TERMINALS PROJECT
# INITIAL ADVICE STATEMENT
## Figure 3.1 Port of Hay Point Land Use Plan Designations

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0012 | Rev: 0 |
|---|---|---|

Compiled by BRISBANE INFRASTRUCTURE GIS SECTION

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## 3.4 Air Quality

### *Existing Environment*

The proposed Dudgeon Point site is near to the existing HPCT and DBCT. Both terminals are dedicated exclusively to exporting coal. Coal dust is the primary air pollutant emitted from coal transport and storage activities at these terminals. HPCT, DBCT and NQBP have jointly established and operate an extensive environmental air quality monitoring network to assist management of coal dust emissions from the existing activities.

Non-coal dust sources within the Dudgeon Point locality are salt spray, pollens, grass seeds and dust created by the disturbance of bare ground by agricultural activities. Regional activities such as cropping, cane burning and sugar mill operations may also contribute to dust particulate levels at Dudgeon Point.

### *Potential Impacts*

The major sources of dust emissions expected from the operation of the proposed Dudgeon Point coal terminals are coal stockpiles, coal unloading facilities at the railway loop, coal load-out facilities, and coal transport using the rail corridor.

Local residents located close to, or downwind, from Dudgeon Point and the associated transport corridors have the potential to be affected by dust. Preliminary coal dust modelling of the Dudgeon Point Project, undertaken by Katestone Environmental Pty Ltd in 2009, indicated that the operation of the proposed coal terminal is 'unlikely to cause adverse impacts at the nearest sensitive receptors', and would meet the requirements for $PM_{2.5}$, $PM_{10}$ and Total Suspended Particulates under the *Environment Protection (Air) Policy 2008*. Detailed dust modelling will be undertaken during the EIS process to confirm potential dust impacts on local communities from the operation of the proposed coal terminals and the rail corridor. Evaluation will include the potential effects of dust emissions on communities, particularly those at McEwen's Beach, Timberlands and Louisa Creek.

Measures to reduce emissions will be also be identified through the EIS process and integrated into the operational procedures of the project EMP. Dust management and suppression measures employed could include the use of water sprinkler systems, water trucks, covered coal conveyors, transfer towers and surge bins, coal moisture control and infrastructure design to reduce dust generation

Atmospheric dust (mainly from clearing, grading, trenching and backfill) as well as exhaust fumes from vehicles and machinery will be the main impacts on air quality during the project's construction phase. These impacts are expected to be localised and short term. Construction dust generation would likely be managed through the application of water in dry and windy periods, and when working in proximity to sensitive receptors.

## 3.5 Noise and Vibration

### *Existing Environment*

The existing operations at HPCT and DBCT are the main noise sources in the Hay Point area. These operations comprise the on-shore coal handling facilities (including coal train movement and unloading) and off-shore activities including the conveyors and ship-loading. Measured background

noise levels are likely to be influenced by the existing activities at these terminals. The area surrounding the Project site is predominately used for rural and rural residential purposes. The closest residential area to the Project site is the Louisa Creek community, the westernmost edge of which is approximately 1 kilometre from the Project site.

The proposed rail corridor route is also adjacent to rural and rural residential areas. A preliminary acoustic assessment was undertaken for NQBP as part of the Dudgeon Point Port Rail Corridor Study. This study concluded that based on preliminary noise modelling, residences in the vicinity of the proposed rail corridor are unlikely to experience noise levels above the planning levels for noise identified by the QR *Code of Practice for Railway Noise Management* (Version 2, 2007).The study did note that in some areas, the proposed development would lead to an increase in noise levels at some sensitive receivers compared to the existing situation.

### *Potential Impacts*

The nature of noise emitted will vary depending upon the source. Potential noise sources arising from the construction of the project may include the following:

- Operation of earthmoving equipment and dredgers
- Ship engines;
- Pile driving for the construction of jetty and wharf structures; and
- General vehicular traffic and building construction noise.

Operational noise will be generated by coal train movements, coal receiving stations, conveyors, stacker-reclaimers and dozers, coal load-out facilities, and shipping activities. The port infrastructure developed for the Dudgeon Point Project is proposed to be established approximately 1 km from the western end of the closest community at Louisa Creek at the closest point and importantly is generally downwind from this community given the predominance of south-easterly winds in the region.

Noise emissions at the proposed terminal will be managed through engineering controls such as the use of low noise idlers on conveyors, the enclosure of transfer towers, and the use of low noise drives for conveyors and yard machines. Other measures that may be used include shrouding audible alarms on stockyard machines and the use of operational practices designed to lessen noise emissions.

Noise barriers or earthen bunds may be utilised adjacent to the rail corridor in order to shield sensitive receivers from rail vehicles. Depending on the particular situation, noise barriers have been noted to achieve up to a 10 to 15dB(A) noise reduction.

A detailed noise and vibration assessment will be undertaken as part of the EIS. Increases in noise levels during construction and operation are likely to be mitigated through a combination of environmental management strategies, appropriate infrastructure design criteria and separation distances to sensitive receptors.

#### *Marine fauna*

There will be a significant increase in the frequency of materials and equipment barges in the port during construction. Piling operations and dredging will be required for the construction of the new wharf and jetty structures. Marine piling can be a source of high levels of underwater sound, particularly for percussive pile-driving techniques. The underwater noise resulting from impact or vibratory piling will potentially impact upon marine creatures near the wharf and jetty structures.

The peak-pressure and cumulative sound exposure impacts associated with marine piling noise will be been assessed for dolphin, dugong, turtles and fish that may be present in the vicinity of the proposed piling works. A detailed marine noise mitigation plan will be developed for marine impact piling.

Management measures for marine noise could include piling processes which utilise 'soft-start' techniques. This technique provides an opportunity for marine fauna to vacate the piling area. Physical controls may include a combination of cushion blocks and pile isolation methods (air-bubble curtain, isolation casing) and visual surveillance of a suitable exclusion zone around the piling operation.

## 3.6 Water Resources

### *Existing Environment*

#### *Surface Water*

Dudgeon Point is located in the Sarina catchment of the Mackay Whitsunday NRM region. The main creeks within the Sarina Catchment draining into Sandringham Bay are Sandy Creek, Bell Creek, Alligator Creek and Splitters Creek. Water quality in the creeks draining into Sandringham Bay is strongly influenced by sugarcane farming and cattle grazing activities in the locality. There are no significant watercourses within the project area however runoff from the eastern part of the project site drains into Louisa Creek. Runoff from the western parts of the site flows directly into the intertidal flats associated with Sandringham Bay.

The rail corridor crosses four ephemeral drainage lines that support native vegetation and which drain surrounding rural cattle grazing land.

#### *Groundwater*

The Project area is located within a proclaimed groundwater district.

The quantities of groundwater available locally are limited as the shallow aquifer system located in the north-east corner of the project area has low to medium permeability.

In addition, groundwater in the Hay Point locality is typically saline. GHD (1999) identified that groundwater quality is generally within the pH neutral range and mildly alkaline in some areas. Total dissolved solids levels indicated that this water would be unacceptable for drinking water use.

### *Potential Impacts*

#### *Surface Water*

The impacts on the local surface water system may consist of increased sediment loads during construction and increased coal sediment loads and associated physical impacts to water quality during operation. The EIS will assess the potential effects of runoff from the developed areas of the project site on local watercourses and the intertidal and marine areas, particularly on Louisa Creek and Sandringham Bay.

Soil disturbance and stormwater runoff have the potential to cause siltation of downstream areas during construction. A Sediment and Erosion Management Plan would be prepared and implemented to minimise site disturbance; to ensure site rehabilitation is undertaken in a timely manner; to direct the construction and maintenance of erosion control measures (including settling dams); and to prevent scouring of high flow drains and waterways.

Project operations will be designed to ensure impacts are managed and downstream water quality requirements are met in consideration of environmental and community values for water. Water quality and the flow regimes of waterways will be described in the EIS. Monitoring sites to be established for the pre-construction, construction and operational phases will be used for the assessment of the potential impact of the project. Mitigation measures required in order to maintain acceptable water quality will be identified during the EIS process and a Stormwater Management Plan will be prepared for the site.

The Project's water management regime will have regard to the following:

- Reduction of erosion and sediment loading to waterways;
- Minimisation of impacts arising from the establishment of Project's facilities on existing flood behaviour;
- Prevention of water contamination from wastewater, hazardous substances and other materials;
- Minimisation of disturbance to channels and waterways; and
- Site water collection and recycling.

***Groundwater***

Sources of potential groundwater contamination may include leachate from the coal stockpile areas, waste water from the sewage treatment plant, and leaks from underground and above ground fuel storage tanks.

Potential effects on the existing groundwater regime and necessary management controls will be assessed in the EIS. The potential Project impact to groundwater may be managed through the appropriate design of coal stockpile leachate collection systems, and the monitoring of groundwater quality to identify any contamination.

## 3.7 Terrestrial Ecology

### *Existing Environment*

***Terrestrial Flora & Ecological Communities***

Significant areas of the Dudgeon Point site have been cleared, albeit that the integrity of the vegetation is moderate to high in vegetated areas that have not been cleared for cattle grazing or the establishment of cane land or pine plantations.

Studies previously commissioned by NQBP have identified that the dominant vegetation structure for the vegetated areas of land at Dudgeon Point is low woodland to low open forest (regrowth).

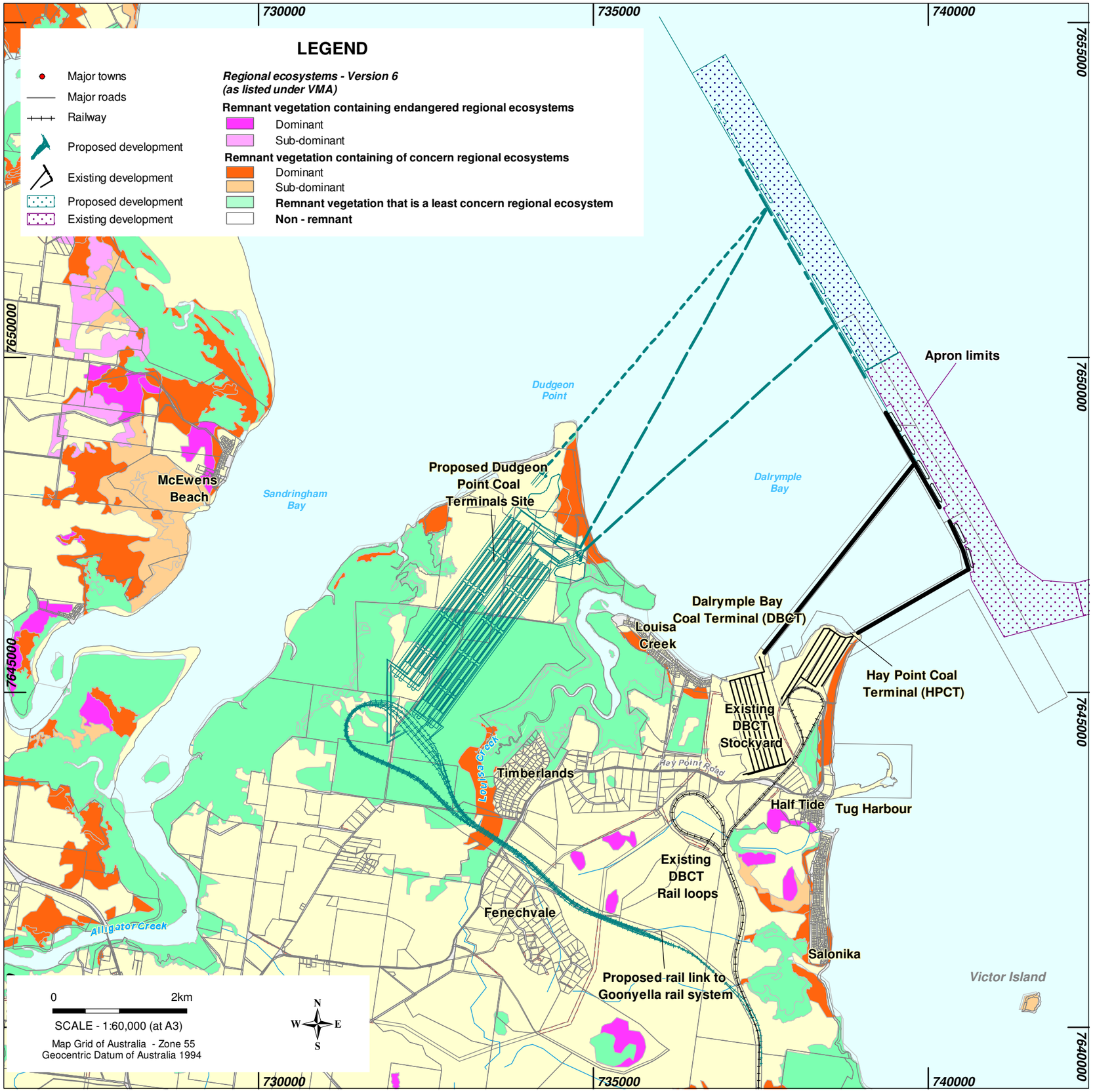
According to field surveys undertaken by Natural Resource Assessments (NRA) in 2002, the proposed Dudgeon Point site does not contain Threatened Ecological Communities (TECs) listed under the EPBC Act. Most of the vegetation found in the project area is mapped as 'not of concern' Regional Ecosystems (REs) under the *Vegetation Management Act 1999*. There are two areas containing an endangered regional ecosystem within the proposed development site. Figure 3.2 illustrates the location of regional ecosystems in relation to the proposed project facilities as mapped by DERM.

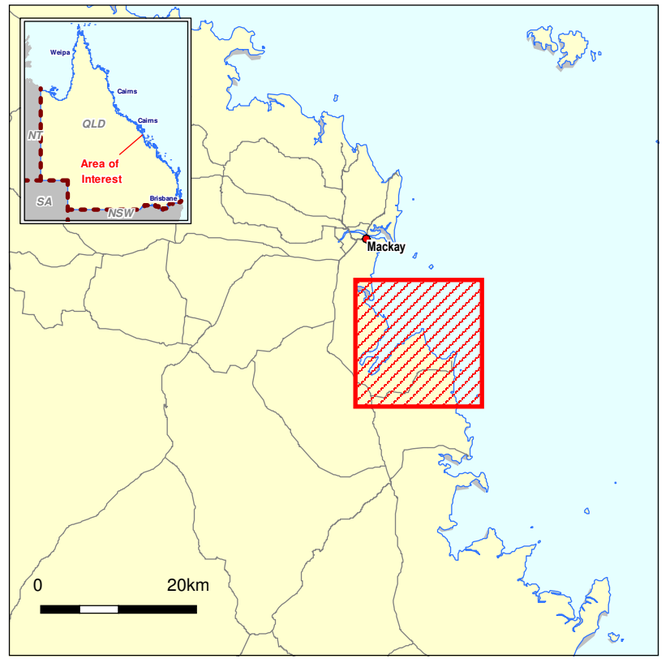
According to GHD (2003), no individual plant species of conservation significance were recorded during field surveys of the Dudgeon Point area, although it was noted that it is possible that the following species occur in the area:

- *Eucalyptus raveretiana* which occurs on creek banks, river banks and alluvials, often in association with *Corymbia tessellaris* forest and is considered to be of national significance.
- *Macropteranthes fitzalanii* which may occur on beach ridges and is considered to be of state significance.

The fore-dune community at Dudgeon Point is considered to be of State significance under the NC Act because of the potential occurrence of the rare *Macropteranthes fitzalanii* on the beach ridges.

WorleyParsons undertook initial field assessment work (as part of the development of baseline information for the Project EIS) at the Dudgeon Point Project site in February 2011. This field work informed constraint mapping for the site, which in turn has informed master planning for the coal terminals. The constraint mapping (based on desktop and field ecological assessment) ranked constraints in a range from no constraint to insurmountable. The majority of the site proposed to be utilised for coal terminal development was identified as having no terrestrial ecology constraint to development (due largely to the existing disturbance levels of the site).




**Source Information**

Main Roads - Department of Main Roads 2009
Proposed development - Translated from Aurecon Drawing H337719-0000-00-015-0060 Rev01 dated 11 July 2011
Proposed rail alignment - Translated from Rail Loop 6x AI E Issued 060911.dxf supplied by the client
Apron limits and departure path supplied by client - 26 August 2011
Regional ecosystems mapping (version 6) - Department of Environment and Resource Management 2009



| Rev | Date | Revision Description | DRN | CHK | ENG | APPD |
|---|---|---|---|---|---|---|
| 0 | 08/09/2011 | Issued for use | DH | KM | | |

WorleyParsons resources & energy

NQBP North Queensland Bulk Ports Corporation

*North Queensland Bulk Ports Corporation*

# DUDGEON POINT COAL TERMINALS PROJECT INITIAL ADVICE STATEMENT

## Figure 3.2 Regional Ecosystems

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0011 | Rev: 0 |
|---|---|---|

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The Dudgeon Point Port Rail Corridor Study (GHD 2010) identified that the rail corridor is located in an area that has largely been previously cleared and converted to pastures. The corridor has been disturbed from cattle grazing processes such as historical woodland clearing and cattle intrusion into the freshwater creeks dissecting the corridor area.

Whilst the corridor displays a number of habitat resources, including tree hollows, grass seed within grasslands, nectar and fruits within the woodland areas, shade and water within the riparian areas and logs and other dead wood, all of these resources are also present over large areas of surrounding farmlands and woodlands. The report identified that the loss of native vegetation along the corridor is expected to be minimal.

*Protected areas*

Adjoining the north-eastern boundary of the proposed terminal site is the Mount Hector Conservation Park, which is listed on the Australian Heritage Commission's Register of the National Estate, and which is gazetted under the Queensland NC Act. The Park is listed as National Estate due to its geological origin, flora, fauna and aesthetic values. Low lying mangroves and pandanus swamp occurs behind the dunes, some of which are important bird habitats. The project will not directly impact on the Mount Hector Conservation Park. Indirect impacts such as noise and dust emissions will be assessed in the EIS.

*Weeds*

*Lantana camara,* a Class 3 pest under the *Land Protection (Pest and Stock Route Management) Act 2002,* is present in the Hay Point area. White Thunbergia (*Thunbergia fragrans*) also occurs in the locality.

***Terrestrial Fauna***

Previous field and desktop studies have identified nine species of mammals which may be present in the Hay Point area, including the Eastern Long-eared Bat (*Nyctophilustimoriensis*) and the Spectacled-Flying Fox (*Pteropus conspicillatus*) which are listed under the EPBC Act, and the Ghost Bat (*Macrodermagigas*) which is listed in the NC Act (NRA 2002).

Nine amphibian species and nine reptiles have also been identified as possibly inhabiting terrestrial and freshwater habitats within the Hay Point area including common native frog species, and introduced species such the cane toad. The nine reptile species previously recorded at Dudgeon Point include snake, gecko and skink species.

The Hay Point locality hosts a multitude of birdlife including shore and wading birds covered by International treaties for migratory birds. These treaties are JAMBA (Japan-Australia Migratory Bird Agreement), CAMBA (China-Australia Migratory Bird Agreement) and ROKAMBA (Republic of Korea-Australia Migratory Bird Agreement).

Previous population surveys indicate that approximately 23,000 shorebirds occur in the region, including the Bar-tailed Godwit, Eastern Curlew, Great Knot, Grey-tailed Tattler, Greater and Lesser Sand Plover, Pied and Sooty Oystercatchers and Whimbrel. Most species are in greatest numbers during the summer months, and utilise roost sites throughout the district, including Bakers Creek/McEwen's Beach and Dudgeon Point.

A search of the DERM Wildnet database identified 209 bird species as being potentially present in the area. Of these, five species are classified as 'rare' under the NC Act. Key species include the Grey

Goshawk which is listed as rare under the NC Act and the White-bellied Sea-eagle which is listed as a migratory species and a marine protected species under the EPBC Act.

Biodiversity Assessment and Management Pty Ltd (BAAM) undertook a preliminary assessment of the migratory shorebird assemblage and habitat utilisation of the proposed coal terminal development area at Dudgeon Point (to assist establishment of baseline conditions for the Project EIS) during February and March of 2011.The study considered the five main foraging habitats that occur within the study area:

(1) mudflats that are exposed at low tide but inundated at high tide;
(2) mangroves;
(3) clay pans that are infrequently exposed to tidal inundation;
(4) a permanent freshwater wetland with extensive ephemeral fringes and
(5) sandy beaches and rocky shores.

Shallow, open waters fringing the mudflats are a further habitat utilised by certain waterbirds and were also considered in the study. The survey work considered the relevant Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) guidelines with respect to migratory shorebird survey assessment. The Dudgeon Point study area, which comprises the northern and intertidal parts of the proposed development site, is part of the Mackay Shorebird Area which has been designated a nationally significant shorebird site and is regarded as important habitat under the EPBC Act. The surveys undertaken by BAAM and previously by the Queensland Wader Study Group (QWSG) for the study area and the broader Mackay Shorebird area suggest that the Dudgeon Point study area provides a considerable portion of the roosting habitat for Migratory shorebirds in the Mackay Shorebird Area. As well as being part of the nationally and regionally significant Mackay Shorebird Area, the study area qualifies under both categories of importance in its own right.

**Figure 3.3 Mudflat and coastal dune vegetation at Dudgeon Point**

## *Potential Impacts*

### *Terrestrial Flora & Ecological Communities*

The EPBC Act requires the protection of TECs, and State REs are protected by provisions of the VMA.

Project activities, notably vegetation removal, have the potential to impact upon flora and fauna species through direct loss or injury to species during construction activities and indirectly through the loss or degradation of habitat areas, habitat fragmentation and / or loss of connectivity. Construction

activities may also impact upon fauna species through increased disturbance from construction noise, vehicle movements and dust production.

The potential effects of the development of coal terminal infrastructure in the study area on the foraging habitats and roosting sites used by migratory shorebirds will be assessed in the EIS, The original proposed project layout has been revised following the shorebird studies to maximise the protection of the roost sites in the northern limits of the site. Further protection could be achieved by restricting human, dog and livestock access to the roost sites. This is likely to be one of the key management measures to reduce impact of the Project on shorebirds.

Vegetation clearing will be undertaken in accordance with best practice to minimise the potential impact. Areas of conservation significance will be avoided where practicable. Rehabilitation programs will be developed and implemented to revegetate and regenerate native vegetation as necessary. Potential impacts will be further addressed through the EIS assessment process and management measures will be incorporated into the Project's EMP(s).

## 3.8 Aquatic Ecology

### *Existing Environment*

The Sandringham Bay-Bakers Creek Aggregation is a listed wetland in the Directory of Important Wetlands of Australia, and is situated to the immediate north of the project locality. The wetland is a good example of marine and estuarine wetlands of the Central Queensland Coast bioregion. The Sandringham Bay flats are significant because of the very extensive expanse of intertidal and shallow water habitat, the diversity of the shoreline and extent of the mangroves. It is recognised as 'nationally important for shorebirds' (DEWHA 2009).

The closest Ramsar wetland to the Port of Hay Point is the Shoalwater and Corio Bays Area, located well to the south, approximately 50km north of Rockhampton.

Lake Barfield, located south of the terminal area, is an artificial wetland situated on private land. The lake supports a range of freshwater fauna, including a range of significant bird species and holds local significance. Lake Barfield is not listed as a wetland of national significance.

The rail corridor crosses four ephemeral drainage lines that support native riparian vegetation communities. The areas of riparian vegetation occurring along the alignment have been subjected to disturbance in the form of groundcover trampling and bank destabilisation through the activities of stock.

### *Potential Impacts*

The construction of the coal terminal and associated rail corridor has the potential to impact upon a number of small watercourses including the lower reaches of Louisa Creek. Managing erosion and contamination into waterways is a priority and will be addressed in the Project's EMP(s).

Potential impacts associated with the operation of the coal terminal will include the potential for coal fines in any site water run-off or water contamination from an accidental spill. Potential impacts will be further addressed through the EIS assessment process and management measures will be incorporated into the Project's EMP(s).

## 3.9 Coastal Processes

### *Existing Environment*

The Australian Geological Survey Organisation (AGSO 1998) reports that strong currents flowing parallel to the coast in the Hay Point area may reach speeds of up to 2 knots (approximately 1.0 m/s) on spring tides. Typical characteristics of the tidal currents as identified in previous reports are as follows:

- Peak current velocities vary from about 0.20 m/s during neap range periods to about 0.50 m/s for spring tides; and
- The tides generally flood towards the south-southeast (165° true) and ebb towards the north-northwest (345° true) with slight variations from tide to tide.

The wave climate at Hay Point is influenced by the Great Barrier Reef, the Northumberland Isles and associated with shoals to the south-east, and the occurrence of tropical cyclones (WBM 2000).

The site is subject to wind-waves and swells with spectral peak periods ranging from about 2 seconds to 18 seconds. Wind waves predominate and typically have a spectral peak period from 3 to 6 seconds. During significant meteorological events the maximum height of wind-waves could reach as high as 4.5 to 5.0m with a corresponding peak period of 6.0 to 6.5 seconds.

### *Potential impacts*

The area proposed to be dredged is relatively undisturbed. The proposed dredging and spoil dumping works may have some localised impacts on water currents and wave characteristics. These changes, in turn may affect sediment deposition resulting from dredging and dredge spoil disposal. The potential impacts of the project on coastal processes will be considered in the EIS.

## 3.10 Marine and Coastal Ecology

### *Existing Environment*

#### *Marine Parks and Areas of Significance*

Parts of the proposed Dudgeon Point Coal Terminals (and the Port of Hay Point) are located within the Great Barrier Reef World Heritage Area (GBRWHA), which encompasses the waters to low water mark along the coastline of the region. In view of the project's location within this area, certain activities have the potential to impact on the Great Barrier Reef and trigger the provisions of the EPBC Act.

The Mackay/Capricorn Management Area of the Great Barrier Reef Marine Park (GBRMP) extends over the waters in the eastern part of the port (refer Figure 1.2). The jetties and berths of the proposed Dudgeon Point Coal Terminals are not located within the GBRMP. Under the GBRMP Zoning Plan, the areas immediately north of the port are zoned Habitat Protection, and the area to the east of the port is zoned General Use.

No declared fish habitat areas (FHAs) exist within Hay Point port limits at this time. The nearest FHA is Bassett Basin in North Mackay.

### *Marine Water Quality*

The Port experiences minimal water quality impacts due to the relatively undeveloped catchment. The waters of Hay Point have naturally low turbidity particularly in winter months.

Samples were obtained by consultant WorleyParsons from three locations (Louisa Creek, Dudgeon Point and Sandringham Bay) over two events in February and March 2011 to characterise marine water quality (to assist establishment of baseline conditions for the Project EIS). Sampling considered physiochemical and chemical parameters.

The two sampling events varied considerably in their findings for chemical water quality. February recorded a minor increase in total phosphorus (TP) at Dudgeon Point, while March exceeded ANZECC/ARMCANZ (2000) water quality objectives at all locations for copper, zinc, ammonia, nitrate and total nitrogen (total phosphorus and reactive phosphorus were also elevated at the Sandringham Bay location). Rainfall for the 10 days prior to sampling is thought to be the key driver of these variations. February recorded ~50mm; March recorded ~200mm (Bureau of Meteorology, 2011).

OC/OP pesticides and total petroleum hydrocarbons were non-detectable during both events.

The main potential water quality impacts are likely to arise as a result of stormwater discharges from port land and the residential communities of Louisa Creek and Salonika. Potential minor impacts may be associated with coal dust and coal spillages from port activities, releases of ship's ballast water, and oil and fuel spills.

### *Marine and Estuarine Fauna*

Humpback whales (*Megaptera novaeangliae*) generally move along the coast annually, well offshore, between June and September. Sei whale (*Balaaenoptera musculus*) and Fin whale (*Balenaenoptera physalus*) are likely to be occasional visitors to the area. Dolphins, including Pantropical spotted dolphin (*Stenella attenuata*), Indian Ocean bottlenose dolphin (*Tursiops aduncus*), Indo-Pacific humpback dolphin (*Sousa chinensis*) and possible Irrawaddy dolphin (*Orcaella brevirostris*) are present in the area (URS 2000).

Six species of turtles have been recorded utilising the offshore, intertidal, estuarine and shoreline habitats in the Hay Point area. These species are Flatback (*Natator depressus*), Green (*Chelonia mydas*), Loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), Hawksbill (*Eretmochelys imbricate*) and Olive Ridley (*Lepidochelys olivacea*) (GHD 2005). The predominant turtle species nesting in the Dudgeon Point area is the Flatback turtle (*Natator depressus*). Green turtles (*Chelonia mydas*) have also been recorded occasionally nesting in the area, predominantly on the beach between Dudgeon Point and Mount Hector.

According to GHD (2003), sightings of dugongs and turtles in the general vicinity of the Dudgeon Point site are uncommon. URS (2000) attributed a lack of sightings to the lack of substantial seagrass beds in the Hay Point region.

Previously Bell (2003) has undertaken marine turtle nesting and foraging surveys in the vicinity of port facilities at Hay Point, Abbot Point and Lucinda. These studies recorded the presence of five green turtles (*Chelonia mydas*) foraging in the region, but did not assess nesting activity. Loggerhead turtles (*Caretta caretta*) have also been recorded foraging in the Hay Point region. The Mackay and District Turtle Watch Association have identified that approximately 30 to 100 Flatback turtles nest annually, each laying approximately three times in a season, across the approximate 30 beaches in the Mackay region.

Bond University and WorleyParsons undertook a beach survey of the Hay Point and Dudgeon Point region in February 2011 to identify potential nesting habitat and nesting activity and to assist establishment of the baseline environmental conditions for the Project EIS. Of the five beach habitat areas surveyed, one site was classified suitable for nesting with appropriate beach access and access to the supra-littoral zone for marine turtles, likely to be a low density nesting site (Louisa Creek Beach), three others were identified as being suitable but sub-optimal and one other was identified as being sub-optimal with limited or absent nesting habitat. Whilst no evidence of nesting activity was encountered during the survey, nesting has been anecdotally recorded in the area previously.

The Dugong (*Dugong dugon*) is listed as protected species under the EPBC Act. There are no declared Dugong Protection Areas within or close to the port. The closest are at Llewellyn Bay and Ince Bay to the east of Sarina, which are declared Dugong Protection Areas under the NC Act and the *Fisheries Act 1994* (NQBP 2009).

WorleyParsons undertook an aerial marine megafauna survey over two days in early August 2011 to capture marine megafauna data and particularly data representative of the peak northwards whale migration period for the Project area to assist establishment of a baseline for the Project EIS. It is proposed that further survey effort will be undertaken towards the end of September 2011 to capture the southerly whale migration period.

The Estuarine Crocodile has also been identified as likely to occur in the Port of Hay Point (NRA 2002) and is listed under the EPBC Act and the NC Act. Crocodile sightings have occurred at the Half Tide Tug Harbour (NQBP 2009).

The Water Mouse, (*Xeromys myoides*) whose survival depends on mangrove communities and a range of other wetlands communities, has been identified in the Port of Hay Point. This species is listed as vulnerable under the EPBC Act and the NC Act (NQBP 2009).

***Fisheries and Aquaculture***

The Mackay region supports important commercial fisheries. Prawn trawling, coastal net setting and crab pot fishing occurs on a commercial scale, in and beyond Dalrymple Bay adjacent to Dudgeon Point. The net and crab pot fisheries target species such as mud crabs, barramundi, threadfin salmon, grunter and flathead (URS 2000). All commercial fishing activities conducted within the Dalrymple Bay area are monitored by QPIF.

Trawling is focused on the coastal areas near estuary and creek mouths to target the mangrove nursery areas for banana prawns. A review of catch data for four selected commercial species also indicated that the catch varies substantially between years (NQBP 2009).

A review of the Coastal Habitat Resources Information System Web database developed by QPIF for recreational catches in the Mackay area indicated baitfish, cod, mud and sand crabs, coral trout, yabbies and whiting were among the highest recorded catches (NQBP, 2009).

***Seagrass, algae and macro-invertebrates***

Seagrass identified in the port limits comprises the deepwater ephemeral *Halophila decipiens* with some areas of *Halophila spinulosa.* According to GHD (2005), the percentage cover of seagrass in these meadows has been found to be low-medium (1% - 35% cover).

Algal communities in the port comprise of erect macrophytes, encrusting, erect calcareous and filamentous algae. Although algae have been found widely throughout the port, the percentage of

algae is generally low and overall it forms a minor component of the marine plant community in the Port of Hay Point.

Previous surveys have described the benthic infaunal and epifaunal communities for dredging areas and spoil ground associated with the existing Port of Hay Point facilities. The density of benthic communities at these locations has been described as low, with small areas of medium density cover present. These previous surveys have identified that this habitat is not of regional conservational value (GHD 2005).

A seagrass, algae and benthic macro-invertebrate survey was undertaken for the Port of Hay Point by the DEEDI - Fisheries Queensland - in October 2010. The survey report (DEEDI, 2010) details the findings of the survey and builds on the ongoing research currently established for seagrasses in the region as well as updating data from earlier surveys that were conducted in 2004 and 2005. The offshore survey area was dominated by open substrate with low density seagrass, macro-algae and habitat forming benthic macro-invertebrate areas present. Figure 3.4 shows the distribution of seagrass in the most recent survey of October 2010.

Benthic macro-invertebrate communities found in 2010 were similar to those found in 2004 and were typical of the types of communities commonly described in deep water (>10m) areas between the Great Barrier Reef and mainland coast.

The area, density and diversity of seagrass in deep water areas at Hay Point varies significantly from year to year, dependent on climatic conditions, particularly light availability in the deep waters where the seagrass is located. The seagrass area in 2010 was higher than seen in 2005 but lower than the first port survey in 2004. The location of the seagrass also varied between surveys.

The October 2010 survey was the first survey to examine the shallow coastal areas for seagrass around Dudgeon Point. Several small low biomass seagrass meadows were found in the vicinity of the proposed land development at Dudgeon Point. Further monitoring is proposed to be undertaken to establish the likely seasonal and annual variation of the extent and density of these meadows.

***Mangrove and Saltmarsh Communities***

The Sandy, Alligator and Bakers Creek systems flow into Sandringham Bay and support extensive mangrove communities, which comprise the majority of the mangrove systems in the Hay Point region. South of Dudgeon Point, the best developed mangrove system is Louisa Creek (GHD 2005). The Sandringham Bay flats are listed as nationally important wetlands.

***Coral Reefs and Rocky Shoals***

There are several fringing reefs located near the proposed Dudgeon Point Coal Terminals site. These occur at Round Top and Flat Top Islands which are located some 7km and 9km respectively north of Dudgeon Point. Hard coral cover on these reefs is generally less than other fringing reefs in the GBR region; hence they are not considered regionally significant (Trimarchi & Keane 2007).

There are also areas of minor reef development supporting sediment tolerant hard corals on some of the intertidal platforms and inshore rocky shoals in the locality (URS 2000).

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## LEGEND

Proposed development site

Departure path

Existing spoil ground

***Seagrass mapping (DEEDI) October 2010***

Light *Halodule uninervis*

Light *Halophila decipiens*

Light *Halophila ovalis*

Light *Halophila ovalis/Halodule uninervis*

See Inset

Dudgeon Point

Dalrymple Bay

Louisa Ck

Hay Point

Half Tide

INSET MAP

0 500m

0 2km

SCALE - 1:50,000 (at A3)

Map Grid of Australia - Zone 55

Geocentric Datum of Australia 1994

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**Source Information**

Main Roads - Department of Main Roads 2009
Proposed development -Translated from Aurecon Drawing H337719-0000-00-015-0060 Rev01 dated 11 July 2011
2009 aerial photography - Sourced from Mackay Regional Council
Satellite imagery dated 14 September 2010 - Supplied by the client
Hay point seagrass mapping extracted from Thomas, R. and Rasheed, M.A. (2011). Port of Hay Point Seagrass, Algae and Benthic Macro-invertebrate Survey - October 2010. (DEEDI, Cairns).



| Rev | Date | Revision Description | DRN | CHK | ENG | APPD |
|---|---|---|---|---|---|---|
| 0 | 08/09/2011 | Issued for use | DH | KM | | |

WorleyParsons resources & energy

NQBP North Queensland Bulk Ports Corporation

***North Queensland Bulk Ports Corporation***

# DUDGEON POINT COAL TERMINALS PROJECT
# INITIAL ADVICE STATEMENT
## Figure 3.4 Seagrass Distribution
## October 2010

| Project No: 301001-01385 | Figure: 01385-00-GM-DAL-0018 | Rev: 0 |
|---|---|---|

Compiled by BRISBANE INFRASTRUCTURE GIS SECTION

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### *Potential Impacts*

The construction and operation of a port facility entails a range of potential risks for the marine environment. Potential impacts on marine ecology and the GBRWHA are associated with both construction and operation of the port.

Potential effects include:

- Impact on water quality from dredging, dredge spoil disposal, accidental spills or discharges from vessels, onshore storage facilities, refuelling activities, or from contaminated runoff from the site;
- Impact on water quality from anti-fouling agents from ships hulls. Tri-butyltin (TBT) present in some antifouling agents and biocides is toxic to shellfish such as mussels and oysters, even in very low concentrations. TBT can enter the marine environment through paint flaking from the hulls of vessels or from leaching directly into the water column;
- Impact on flora and fauna from the introduction of foreign marine organisms through ships ballast and hull fouling. Invasive marine species can have a significant impact on our marine industries and environment if local conditions are favourable for their establishment. The impacts of invasive species outbreak could lead to impacts on human health, fisheries and aquaculture, shipping and ports, tourism and ecosystem health;
- Impacts on marine species from dredging and construction activities. Dredging and sea dumping during the construction of offshore works which will disturb sea floor habitats and affect water quality by temporarily increasing in turbidity levels resulting from the mobilisation of dredged sediments into the water column;
- The increased disturbance from pile driving activities during construction and increased lighting required during construction and operation and the potential impact on marine fauna species. Turtles are known to nest in the Dudgeon Point area including along the beach extending from Dudgeon Point to Mount Hector.

A potential benefit associated with the construction of port infrastructure is the creation of new habitat areas for marine flora and fauna from the piled structure.

NQBP is currently investigating potential options for the relocation of dredged material associated with the marine infrastructure and associated berth areas and access channels. Options to be investigated include onshore and offshore material relocation sites. The placement of spoil material from dredging may also have an impact on marine flora and fauna if offshore placement is considered. The impact on both terrestrial and marine flora and fauna for these options will be assessed during the EIS process.

As part of this assessment sediment sampling will be undertaken in accordance with a sediment sampling and analysis plan (SAP). The results will be assessed against the National Ocean Disposal Guidelines for Dredged Material for unconfined sea disposal.

A Dredging Environmental Management Plan (DEMP) will be developed with suitable management measures designed to address the impacts associated with the proposed dredging. The DEMP will provide the environmental management requirements for the proposed dredging.

## 3.11 Cultural Heritage

### *Existing Environment*

A large and culturally diverse indigenous population exists in the Sarina district, along with a large number of well organised indigenous groups that undertake various representational roles.

In 2003/2004, NQBP commissioned a detailed cultural heritage assessment of the Dudgeon Point locality. Fieldwork surveys were conducted in partnership with the following Indigenous groups – Birri Group, Wirri Group and Yuibera Group. These surveys identified some areas of high cultural significance in the Port of Hay Point area, primarily at the Mt Hector Conservation Park and in adjacent coastal areas.

No Native Title claims are current over the area of proposed development. The majority of the on-shore area to be developed is held under freehold title and therefore not subject to Native Title. Offshore areas are held under a perpetual lease from the Queensland Government.

#### *European Heritage*

Archaeo (2004) investigated European Cultural Heritage in the Hay Point and Dudgeon Point areas. These investigations found that the first Europeans landed on the *Presto* in 1862 at Sandy Creek, just north of Dudgeon Point. This vessel provided supplies to Captain James Mackay, the first European settler in the region.

Development occurred to the southwest of Dudgeon Point in 1896, when a tramway was constructed from Plane Creek Sugar Mill to the mouth of Louisa Creek. The associated sugar wharf at Louisa Creek is a vital part of the history of the sugar industry (B. Hobbs, pers.com).

### *Potential Impacts*

#### *Indigenous Heritage Values*

All items of Aboriginal cultural heritage in Queensland are protected under the *Aboriginal Cultural Heritage Act 2003* (ACH Act). Construction activities may have the potential to disturb or damage significant cultural areas or objects. Managing the impact of the Project on Aboriginal cultural heritage will be undertaken within the framework of the ACH Act.

As noted above, cultural heritage sites are known to exist in the vicinity of Dudgeon Point. It is intended that cultural heritage matters will be further investigated as part of the EIS. It is considered likely that identified sites of cultural heritage significance will be included as part of NQBP's future environmental buffer areas around the Dudgeon Point terminal site, and that cultural heritage management plans (CHMPs) will be negotiated with the relevant Aboriginal parties to establish protocols for managing potential impacts to Aboriginal cultural heritage.

#### *European Heritage*

Construction activities have the potential to disturb or damage previously unrecorded and significant heritage sites. Project facilities will be designed and located to minimise the potential impact on identified culturally significant areas listed under the *Queensland Heritage Act 1992.* Procedures will be put in place to identify, record and assess heritage items uncovered during construction, so that appropriate management of these items and sites can occur.

## 3.12 Waste

### *Existing Environment*

#### *General Waste*

As a 'greenfield' site, there are no existing waste or wastewater controls at the Dudgeon Point or rail corridor sites.

#### *Quarantine Waste*

Quarantine waste from ships using the port is collected under AQIS protocols and taken to the port's quarantine waste treatment facility. The quarantine waste is sterilised with steam under high temperatures and pressures and then disposed to a licensed council facility.

### *Potential Impacts*

#### *General Waste*

The following general wastes are likely to be produced during construction and operation of Dudgeon Point coal terminals and the associated rail corridor:

- General domestic garbage from onsite construction and operational activities;
- Paper, cardboard and timber from packaging;
- Scrap steel and batteries; and
- Waste hydrocarbons and oily rags from equipment maintenance and refuelling.

The construction and operation of the proposed Dudgeon Point coal terminals and associated rail corridor will generate a range of solid wastes and effluent which, if not properly disposed of, may impact on the environment and local communities.

Solid waste from the terminal sites will be collected by a licensed contractor and disposed in a licensed council facility during both the construction and operational phases. Waste volumes will be minimised by recycling products such as cabling, paper, cardboard steel, and plastics.

An inventory of all wastes produced by the project will be detailed during the EIS and waste management measures will be outlined in the Project's EMP(s).

#### *Wastewater*

Wastewater associated with the coal terminal operations may be generated from surface runoff (e.g. from coal stockpiles), the wash down of equipment, the application of water to control dust and grey water and sewage from onsite amenities.

Contaminated stormwater has the potential to impact on the quality of the surrounding terrestrial and marine environment if not managed appropriately and if discharged from the site. It is intended that wastewater will be contained and recycled on site as part of the overall water management system.

Sewage from each terminal site will be treated in on-site sewage treatment plant. Discharge limits will comply with DERM requirements. Treated waste water will be collected on site in the stormwater collection dams and reused on site for industrial purposes. During the construction phase either package treatment plants will be used to treat sewage, or pump facilities will be used for transport of the waste to a Council treatment plant.

Management measures will be outlined in the Project's EMP(s), which will be developed during the EIS process.

***Quarantine Waste***

Quarantine waste from any ships using the port will continue to be collected under AQIS protocols and treated in the port's quarantine waste treatment facility. The existing treatment facility is proposed to be doubled in capacity to handle the higher number of ships using the port.

## 3.13 Traffic and Transport

### *Existing Environment*

***Road Traffic***

The Dudgeon Point terminal site is a 'greenfield' site. It is serviced by an existing road network which links the site to the Bruce Highway via Hay Point Road. Hay Point Road also services the existing two coal terminals in the port and the settlements of Louisa Creek, Half Tide, and Salonika.

Hay Point Road is a declared main road and is a two lane, bitumen-sealed road. Its condition has reportedly been affected by heavy loads during the current HPCT port expansion and remedial works are expected to be needed before the next port expansion. It has been upgraded to take oversized loads. Bally Keel Road, which intersects Hay Point Road approximately 3.5 km east of the Bruce Highway, is a regional council road which provides access to the southern boundary of the Dudgeon Point area.

***Shipping***

In 2009/10, 99.5 million tonnes of coal was exported through the Port of Hay Point, with 1121 ships using the port. Coal throughput in the port declined to 87.8 million tonnes in 2010/11 due to flooding of a number of mines affecting supply to the port.

***Rail Traffic***

There is currently an existing QRN operated rail line approximately 4.5 km to the east of the Dudgeon Point project area. This line is fully electrified and services the coal trains from the Bowen Basin coalfields to the coal terminals at Hay Point and Dalrymple Bay.

Coal is transported to the existing coal terminals exclusively by train. Trains are approximately 2 km long and carry up to 9600 tonnes of coal. Trains operate 24 hours per day, seven days a week.

### *Potential Impacts and Mitigation Measures*

***Road Traffic***

The development of the coal terminal will generate an increase in road traffic to and from the site, during both construction and operation. Nearby roads may therefore experience increased traffic loads. During construction, the delivery of some large equipment is likely to occur by sea as well as by heavy commercial vehicles using the local road system.

The impact on local roads, waterways, rail connections during construction and operation will be assessed as part of the EIS process. Impacts associated with the upgrade of roads, the establishment of the new rail line, and the concomitant impact of the increase in traffic on local communities and

transportation infrastructure, will be assessed during the EIS. For example, measures such as the avoidance of truck movements during school bus hours will be examined. The establishment of new and upgraded roads will involve engagement with key stakeholders.

***Shipping***

The additional coal exported from the new terminals will increase ship numbers by around 2000 ships per year. Ship numbers through the port would be expected to be in the order of 3000 to 3500 per year once all terminals in the port are operating at close to their capacities.

The increase in shipping will increase the volume of quarantine waste received for treatment and will increase the risk of marine incidents occurring, both in the port and in transiting through the Great Barrier Reef Marine Park. Means to minimise these impacts will be presented in the EIS.

***Rail Traffic***

To support the export capacity of up to 180 Mtpa, there will be 40- 50 trains per day going both to and from the Dudgeon Point terminals. The main impact during the operational phase will be noise generated by train movement. Noise impacts are addressed in Section 3.5. It is expected that noise mitigation measures, such as sound barriers or earthen bunds, will be used where the train corridor is close to any communities. Noise modelling will be used to determine where noise mitigation measures are required.

During the construction phase, significant earthworks will be required to construct the rail connection to Dudgeon Point. Appropriate controls will be put in place to control potential noise, dust and stormwater impacts.

## 3.14 Socio-economic Aspects

### *Existing Environment*

Mackay and the smaller township of Sarina are the service centres for the area. Mackay contains a full-range of services and facilities and is the regional centre for the district. Sarina serves as the centre to provide most day to day needs. The economy of the region is primarily dependent upon the mining, agricultural and tourism industries.

Two residential settlements are located in close proximity to the Dudgeon Point site: Louisa Creek, located approximately 1 km south-east of the site boundary and the Timberlands estate, located adjacent to the south eastern corner of the site. Both settlements are situated upwind of the project site given the prevailing south-east winds.

A third settlement, McEwen's Beach, is located approximately 5 kilometres north-west of the project site, on the western side of Sandringham Bay. This community is 'downwind' from Dudgeon Point and could potentially be affected by any activity that generates significant atmospheric emissions.

The proposed rail corridor traverses lands which include rural and rural residential developments. The western portion of the rail corridor intercepts land holdings which form part of the residential community situated around Bensons and Fenech Roads.

### *Potential Impacts*

The proposed development will generate:

- An increased demand for construction and operational workforce, potentially resulting in a shortage of skilled and unskilled labour in the regional economy;
- An influx of construction workers (and families) pushing up the cost of housing, accommodation and rents;
- A change in community values and lifestyle;
- An increase in service and supply opportunities in the local economy; and
- An increase in demand for social services such as schools, leisure and recreation, medical support, hospitals and police.

NQBP has undertaken initial consultation on the Project with residents and stakeholders in the communities in the Hay Point Port area. Some residents have responded that they believe their chosen lifestyle will be adversely affected by the project. Other respondents believed that physical expansion of the port facilities and increased coal throughout may result in increased levels of coal dust and noise and will constitute a further reduction in the residential amenity of their communities.

Development of the coal terminals will need to incorporate suitable safeguards and buffers to minimise the potential for the negative impacts of development. During construction, the effects on housing, employment, public services and roads may be substantial. These impacts will be assessed along with operational impacts, as part of the EIS process. In addition, appropriate mitigation actions will be identified to assist in the management of the expected effects.

## 3.15 Climate Change

The greenhouse emissions from operation of the new terminals and ancillary services will be assessed and presented in the EIS. The EIS will provide details of the intended objectives and project initiatives for minimising greenhouse emissions from the project. This will include the potential to generate and use renewable energy on site to reduce greenhouse emissions from site operations.

Climate change will cause sea level rise, an increase in cyclone intensity and storm surge impacts. The EIS will present measures being undertaken to design the project for expected climate change impacts that may occur over the project life.

## 3.16 Visual Amenity

The visual amenity of the project areas in general is valued by the local communities.

The project EIS will describe the views, outlooks, ridgelines and other features contributing to the amenity of the area. The character of the built form, vegetation and land use, and the value of existing vegetation as a visual screen, will be examined.

The potential impacts of the project upon the landscape character of the site and the surrounding area will be described in the EIS. This analysis will discuss the visual impact of the project on particular panoramas and outlooks, when viewed from public places and will give special consideration to public roads, public thoroughfares, and places of residence or work, which are within line-of-sight of the project.

## 3.17 Regional and Local Economies

The local economy is principally based upon sugar cane and the export of coal. The EIS will describe the existing economic situation and will assess the economic impacts of the development proposals upon this economy in particular. The analysis will include the direct economic impacts on industry and the community including property values, industry output, employment, and household incomes.

## 3.18 Hazard and Risk Assessment

Risk assessments, consistent with Australian / New Zealand *Standard for Risk Management AS4360:2004* and *AS2885*, will be conducted to identify and assess potential risks during the construction, operational and decommissioning phases of the Project. Hazard identification studies will be carried out during the EIS process to identify the nature and scale of hazards which have the potential to occur if not properly managed. This would examine such items as:

- Construction accidents;
- Release of liquid gaseous or particulate pollutants or any other hazardous material used or stored on the site;
- Marine collision;
- Release during ship loading; and
- Natural events such as cyclones, earthquakes, bushfires or local flooding.

Risk analyses and a draft risk management plan will be developed concurrently with the EIS for the construction and operational phases of the Project. A risk assessment in accordance with *Australian Standard 2885* will be undertaken for the operation of the coal terminal and associated rail corridor.

# 4. Environmental, Health and Safety Management

NQBP strives to manage its ports proactively to prevent pollution and to minimise and reduce adverse impacts to the environment from port operations or new developments. NQBP has a structured environment program that involves environmental assessment, auditing, monitoring, protection and management. It strives for continual improvement in the control of the port and port user activities to maintain a healthy and ecologically sustainable port environment.

NQBP is an environmentally responsible company that is committed to protection of the environment and the sustainable management of its ports and activities. NQBP has an Environmental Management System (EMS) that is externally certified to AS/ISO 14001:2004 to ensure continual improvement in environmental performance.

NQBP leases land or infrastructure to other organisations to carry out port-related activities and has a planning, co-ordinating, facilitation and development function in the port. The operators of facilities in the port generally have control over potential impacts of their activities, and any environmentally relevant activities they undertake will be licensed by either the DERM or the local council.

In its co-ordination role, NQBP carries out monitoring of the whole port environment to complement any monitoring carried out by facility operators. NQBP manages the potential impact of new projects through appropriate management plans.

The main activities carried out by NQBP are dredging to maintain navigable depths for ships and construction of common user port facilities. The impacts of these activities are controlled through appropriate environmental management plans, extensive environmental monitoring and close consultation with stakeholders.

NQBP's Environment Policy is provided at Appendix 1 - .

# 5. Stakeholder Engagement

## 5.1 Stakeholder Engagement Principles

NQPB recognises that the sustainability of its business necessitates being mindful of, and attentive to the potential environmental and societal impacts of the Project. Accordingly, NQBP is committed to the principles and practices of stakeholder engagement and consultation with the Project's many stakeholders. NQBP is committed to respecting the rights and interests of individual citizens, relevant organisations and the communities in which the Project will operate.

### *Stakeholder Engagement Objectives*

The key objectives of the NQBP stakeholder engagement program will be to:

- Raise awareness about the Project, its potential impacts and timelines amongst stakeholders as early as possible in the process;
- Engage as early as possible in the assessment process to ensure stakeholders have the maximum time possible to consider the Project's potential impacts and potential mitigation strategies;
- Explain the EIS process and provide an understanding of the regulatory approval process;
- Actively listen to seek an understanding of potential stakeholder concerns, issues and interests;
- Encourage stakeholder input into the decision-making process; and
- Foster regular and ongoing communication with stakeholders to ensure issues are captured and project information is made available.

A key objective of the engagement process is to maintain long-term, positive relationships between NQBP, the project proponents and stakeholders throughout all stages of the Project including planning, construction, commissioning, operations and final decommissioning.

## 5.2 Stakeholder Engagement Process

As part of the process for environmental impact assessment under the SDPWO Act, stakeholders have the opportunity to comment about the Project at two critical points in the assessment process. These are at the release of the EIS terms of reference and Draft EIS report.

The stakeholder consultation process will also involve a range of on-going activities to raise awareness about the Project. Relevant stakeholders with an interest in the Project will be identified and consulted to ensure information is provided to meet their specific interests.

Relevant agencies across the three tiers of government will be consulted to facilitate the identification of project approval requirements. This would include consulting with head office staff and also representatives of regional offices. Such meetings will cover a range of health, safety and environmental aspects related to the approvals, construction and operational phases.

Engagement shall also be undertaken with the Project's other key stakeholders including individual landholders, Traditional Owner groups and other interest groups. To date, the proponents have

undertaken preliminary consultation with the broader community in the study area. A range of two-way communication tools will be implemented to inform stakeholders and to elicit their input into the assessment process. These may include:

- Public meetings and/or information days;
- One-on-one meetings;
- The NQBP website;
- Brochures and/or fact sheets;
- Posters;
- Media (print, radio, TV and internet); and
- Use of the established Port of Hay Point Community reference Group.

As the Project gains momentum, consultation will also be undertaken with operators and industries in the area to understand potential cumulative effects and identify synergies for input to the EIS process.

# 6. References

Geoscience Australia and ABARE (2010). *Australian Energy Resources Assessment*, Canberra.

GHD (2003). *Development of Land Holdings at Dudgeon Point: Investigation Report,* prepared for PCQ.

GHD (2010a). *DudgeonPointPort Rail Corridor Project Flora and Fauna Assessment,* prepared for NQBP.

GHD (2010b). *DudgeonPointPort Rail Corridor Study Assessment Report Supporting Transport Infrastructure Designation,* prepared for NQBP.

Hatte, E. (2010). *A Report of Desktop Research of the Cultural Heritage Values of the Proposed Dudgeon Point Rail Corridor Mackay, Central Queensland*, Northern Archaeology Consultancies Pty Ltd, prepared for GHD.

Katestone Environmental (2009). *Dust Modelling Study of Dudgeon Point Coal Terminal Rail Corridor,* prepared for NQBP.

NQBP (2010). *Port of Hay Point Land Use Plan,*

<http://www.nqbp.com.au/publications/PortofHayPointLandUsePlan.pdf>.

NQBP (2009). *Port of Hay Point Environmental Management Plan,*

<http://www.nqbp.com.au/publications/PortofHayPointEnvironmentalManagementPlan.pdf>

PCQ (2007). *Port of Hay Point Dredging Environmental Management Plan.*

Hydrobiology Pty Ltd (2004). *Port of Hay Point (Departure Apron Area) - Maintenance Dredging SAP 2004.*

NQBP (2011). *Hay Point Portal (newsletter)*, Issue 10, June 2011,

<http://www.nqbp.com.au/publications/HayPointPortal-June2011.pdf>

World Coal Association (2011).*Coal & Energy Security*, viewed 28 July 2011,

<http://www.worldcoal.org/coal-society/coal-energy-security>

# 7. Abbreviations and Glossary of Terms

## ABBREVIATIONS

| | |
|---|---|
| **AGO** | Australian Greenhouse Office |
| **ASS** | Acid sulphate soils |
| **ABARE** | Australian Bureau of Agriculture and Resource Economics |
| **A$** | Australian dollars |
| **BMA** | BHP Billiton Mitsubishi Alliance |
| **CHMP** | Cultural Heritage Management Plan |
| **DLGP** | Department of Local Government and Planning |
| **DTMR** | Department of Transport & Main Roads |
| **DBCT** | Dalrymple Bay Coal Terminal |
| **DBCTM** | Dalrymple Bay Coal Terminal Management Pty Ltd |
| **DERM** | Queensland Department of Environment and Resource Management |
| **EIS** | Environmental Impact Statement |
| **EMP** | Environment Management Plan |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act, 1999* (Cth) |
| **ERA** | Environmentally Relevant Activity |
| **GBRMP** | Great Barrier Reef Marine Park |
| **GBRMPA** | Great Barrier Reef Marine Park Authority |
| **GBRWHA** | Great Barrier Reef World Heritage Area |
| **HPCT** | Hay Point Coal Terminal |
| **HPS** | Hay Point Services Pty Ltd |
| **IAS** | Initial Advice Statement |
| **ILUA** | Indigenous land use agreement |
| **LAT** | Lowest astronomical tide |
| **MCU** | Material change of use |

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|---|---|
| **Mtpa** | Million tonnes per annum |
| **NES** | National environmental significance |
| **NQBP** | North Queensland Bulk Ports Corporation Ltd |
| **NTA** | *Native Title Act, 1993* |
| **RE** | Regional Ecosystem |
| **PCQ** | Ports Corporation of Queensland Limited |
| **PIT** | Prime Infrastructure Trust |
| **SDPWO Act** | *State Development and Public Works Organisation Act, 1971 (QLD)* |
| **SPA** | *Sustainable Planning Act 2009* |
| **TDS** | Total dissolved solids |
| **TEC** | Threatened ecological community |
| **TI Act** | *Transport Infrastructure Act 1999* |
| **TOC** | Total organic content |
| **TOR** | EIS Terms of Reference |
| **VMA** | *Vegetation Management Act, 1999* |

## GLOSSARY

| | |
|---|---|
| **Acid Sulphate Soils** | Naturally occurring soils, sediments or organic substrates (e.g. peat) that are formed under waterlogged conditions. These soils contain iron sulphide minerals (predominantly as the mineral pyrite) or their oxidation products. In an undisturbed state below the water table, acid sulphate soils are benign. However if the soils are drained, excavated or exposed to air by a lowering of the water table, the sulphides will react with oxygen to form sulphuric acid. |
| **Berth Pocket** | A location in a port or harbour used specifically for mooring vessels next to a wharf and where loading or unloading occurs. |
| **Bioregion** | An ecologically and geographically defined area smaller than a "realm" or "ecozone". Eco-regions cover relatively large areas of land or water, and contain characteristic, geographically distinct assemblage of natural communities and species. The biodiversity of flora, fauna and ecosystems that characterise an eco-region tend to be distinct from that of other ecoregions. |
| **Catchment** | The term used to describe the area which is drained by a river. It is sometimes called the river basin or watershed. The catchment is the most significant factor determining the amount or likelihood of flooding. |
| **Climate Change** | Any long-term significant change in the “average weather” that a given region experiences. Average weather may include average temperature, precipitation and wind patterns. It involves changes in the variability or average state of the atmosphere over durations ranging from decades to millions of years. |
| **Controlled Action** | A term used under the *Environment Protection and Biodiversity Conservation Act, 1999* to determine whether an action is likely to have an impact on matters of national environmental significance. If a project is declared a ‘controlled action’, development approval is required from the Minister for Sustainability, Environment, Water, Population and Communities. |
| **Cultural Heritage** | The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. |
| **Economic Impact Assessment** | Assessment of the measured effect on the economy of a region of an impacting agent. |
| **Ecosystem** | A natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the non-living physical (abiotic) factors of the environment. |
| **Emissions** | Release of pollutants to air. |
| **Environmental Impact Assessment (EIA)** | The process used to assess the environmental impact of a proposed development. |
| **Environmental Impact Statement (EIS)** | The information document prepared by the Proponent when undertaking an environmental impact assessment. It is prepared in accordance with terms of reference prepared or approved by Government. |
| **Environmental Management Plan** | A document developed by Proponents during a project’s planning and design. An EM Plan provides life-of-project control strategies in |

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|---|---|
| **(EM Plan)** | accordance with agreed performance criteria for specified acceptable levels of environmental harm. It may continue through the whole life of a project (e.g. preconstruction, construction, operation and decommissioning). |
| **Fauna** | Animal life. |
| **Flora** | Plant life. |
| **Greenhouse Gas** | The gases present in the earth's atmosphere which reduce the loss of heat into space and therefore contribute to global temperatures through the greenhouse effect. |
| **Hazard** | A hazard is usually a potentially harmful situation, although not usually the harmful event itself. Once the incident has started it is classified as an emergency or incident. |
| **Initial Advice Statement** | A document prepared for a proposed project that is submitted to the Coordinator General so that a decision can be made as to whether the project should be declared a 'significant project for which an Environmental Impact Statement is required' under Section 26 (1) (a) of the *State Development and Public Works Act, 1971 (Qld)*. |
| **Receptors** | Sensitive component of the ecosystem that reacts to, or is influenced by environmental stressors. |
| **Regional Ecosystem** | Communities of vegetation that are consistently associated with a particular combination of geology, land form and soil in a bioregion. |
| **Rehabilitation** | The process of environmental restoration after some process (business, industry, natural disaster etc.) has damaged it. |
| **Remnant Vegetation** | Vegetation that is mapped by Department of Environment and Resource Management (DERM) as being within a remnant endangered regional ecosystem, a remnant of concern regional ecosystem, or a remnant not of concern regional ecosystem map. Vegetation remaining after an area has been cleared or modified. |
| **Risk** | The potential impact of an event, determined by combining the likelihood of an event occurring, and the consequence if it were to occur. |
| **Stakeholder** | A person or organisation with an interest or stake in a project. |
| **Topography** | A description of the surface features of a place or region. |
| **Wetland** | The land area alongside fresh and salt waters, that is flooded all or part of the time. |

# Appendix 1 - NQBP Environment Policy

NQBP
NORTH QUEENSLAND BULK PORTS CORPORATION
www.nqbp.com.au

# ENVIRONMENT POLICY

***North Queensland Bulk Ports Corporation Limited (NQBP) manages the Queensland bulk ports of Hay Point, Mackay, Abbot Point and Weipa. NQBP is an environmentally responsible company that is committed to protection of the environment and to the sustainable management of its ports and activities.***

To achieve these outcomes, NQBP and its staff and contractors will-

**Demonstrate environmental responsibility through:**

- Proactively minimising environmental impacts on the natural, social and cultural heritage values;
- Mitigating pollution and minimising waste from NQBP activities;
- Implementing risk management techniques to assess potential impacts of activities and to introduce appropriate controls;
- Monitoring our environmental impacts and performance;
- Managing and reducing our greenhouse gas production and natural resource use;
- Seeking continual improvement in our environmental performance; and
- Aiming for environmental best practice in all of our activities.

**Apply a high level of governance through:**

- Maintaining our environmental management system to meet the standard set by AS/ISO14001:2004, as a tool for continual improvement in environmental performance;
- Complying with relevant environmental legislation, government policies, industry standards and codes of practice;
- Setting environmental objectives and targets that are designed to continually improve NQBP's environmental performance; and
- Encouraging and assisting our suppliers, customers and tenants to improve their environmental performance.

**Lead by example through:**

- Expecting all employees and contractors engaged by NQBP to take personal responsibility for meeting the obligations of this policy;
- Communicating proactively, openly and honestly on our environmental performance; and
- Providing on-going training and support to staff to achieve best practice environmental outcomes.

Brad Fish
Chief Executive Officer
28 July 2009

ECO PORTS