

CAIRNS SHIPPING DEVELOPMENT PROJECT

Revised Draft Environmental Impact Statement

Chapter C4: Maritime Operations Management Plan



TABLE OF CONTENTS

CHAPTER C4: MARITIME OPERATIONS MANAGEMENT PLAN _____ I

C4.1	Introduction	3
C4.2	Purpose	4
C4.3	Scope	4
C4.4	Terms of Reference.....	4
C4.5	Legislation and Policy	5
C4.5.1	<i>Commonwealth Legislation</i>	5
C4.5.2	<i>Queensland Legislation</i>	6
C4.5.3	<i>Port Procedures</i>	6
C4.5.4	<i>Other Regulations, Codes and Guidelines</i>	6
C4.6	Site Location and Existing Management.....	7
C4.6.1	<i>Site Context</i>	7
C4.6.2	<i>Environmental Management System</i>	13
C4.6.3	<i>Environmental Policy</i>	13
C4.7	Maritime Operations Management Plan Structure	14
C4.7.1	<i>Management Issues</i>	14
C4.7.2	<i>Management Strategies</i>	14
C4.8	Vessel Traffic Management Plan	15
C4.8.1	<i>Vessel Management in Navigation Areas</i>	16
C4.8.2	<i>Marine Operations Management Systems</i>	18
C4.8.3	<i>Marine Operations Resources (Physical and Human Resources)</i>	19
C4.8.4	<i>Emergency Management</i>	20
C4.8.5	<i>Vessel Strike</i>	22
C4.9	Aids to Navigation Management Plan	23
C4.9.1	<i>Aids to Navigation</i>	23
C4.10	Ship-Sourced Pollution Prevention Management Plan.....	25
C4.10.1	<i>Introduction of Exotic Marine Organism</i>	25
C4.10.2	<i>Release of Shipping Waste</i>	28
C4.10.3	<i>Ship Sourced Spills and Pollution</i>	31
C4.11	Action Program	35
C4.11.1	<i>Continuous Improvement</i>	35
C4.11.2	<i>Auditing</i>	35
C4.11.3	<i>Monitoring</i>	35
C4.11.4	<i>Records</i>	35
C4.11.5	<i>Responsibilities for Implementation</i>	36
C4.12	References	37

List of Figures

Figure C4-1	Proposed channel design.....	8
Figure C4-2	Northern Sands Dredge Material Placement Area configuration.....	9
Figure C4-3	Tingira Street Dredge Material Placement Area configuration.....	10
Figure C4-4	Cairns Port vessel transit data.....	11
Figure C4-5	Port Limit and Pilotage Areas.	12

List of Tables

Table C4-1 MOMP Components 14
Table C4-2 Management Strategy Components 15

C4.1 Introduction

The Port of Cairns is the principal port in Far North Queensland, with the main industries being sugar, agriculture and tourism. Imports include refined fuel products, fertilizers and general cargo and exports raw sugar, molasses and general cargo. Regular shipping services have been established to service the small communities in the Gulf of Carpentaria and the Torres Strait as well as the mining communities in Papua New Guinea and Indonesia.

The Port of Cairns is a regular port of call for cruise ships and is a base for Royal Australian Navy patrol boats and a large fishing fleet. There is a large marina catering for vessels up to super yachts and a significant fleet of tourist vessels that provide daily tours to the Great Barrier Reef.

In terms of cruise ship movements, the total number of cruise ships visiting Cairns (excluding Adventure Class ships) was 43 in 2015 and 64 in 2016, split between those ships able to berth at Trinity Wharves and those anchoring 4 km offshore from Yorkeys Knob.

The demand study update for the revised project (**Appendix H**) indicates that projected cruise shipping visits into Cairns will continue to increase; but noting that key factors affecting the rate of growth will include the proposed infrastructure upgrades for the channel and fuel bunkering (as proposed in this EIS) as well as other external factors such as home porting of vessels in Cairns, relocation of additional larger ships to the Australian market and impacts associated with other port constraints/developments, in particular the proposed Brisbane Cruise Terminal.

Under the most optimistic scenario (which assumes the proposed Brisbane Cruise Terminal is operating and there are vessels homeporting at the Port of Cairns), the overall number of ship visits is projected to reach 151 by 2031 with 69 at Yorkeys Knob and 82 at Trinity Wharf. With construction of the revised channel and fuel bunker availability as proposed in the EIS, the overall number of ship visits is projected to increase by 33 to 183 with the Yorkeys Knob/Trinity Wharf balance shifting to 31 vessels at Yorkey's and 152 vessels at Trinity Wharves (**Appendix H**).

While the main purpose of the project is to take advantage of cruise shipping opportunities, there are also significant other benefits to non-cruise forms of shipping, including:

- Enabling future expansion of the HMAS Cairns Navy base. Potential expansion could bring permanent defence force staff to reside in Cairns and also allow larger visiting overseas Navy vessels (in particular US Navy carriers) to enter the port for Rest and Relaxation (R and R) visits
- The wider and deeper shipping channel will reduce the current tidal and loading restrictions on bulk cargo ships accessing the Port of Cairns, thereby improving both port efficiency and travel times for cargo ships travelling north which currently need to access both the Port of Cairns and Townsville in order to share their loads.

Ports North, as the port authority, will be responsible for developing and managing the project. The operation of the project will be under the same management structure. Other key stakeholders that will play a role in the development of infrastructure and the management of operations are:

- Maritime Safety Queensland (MSQ), a government agency of the Department of Transport and Main Roads and the Cairns Regional Harbour Master (RHM), who are the authority responsible for navigation safety in the Port of Cairns. The RHM was consulted on 27 August 2014 to understand the requirements to be incorporated into this Marine Operations Management Plan (MOMP) with particular focus on navigational safety and emergency management.
- Royal Australian Navy.

C4.2 Purpose

This Marine Operations Management Plan (MOMP) has been prepared to assess and manage impacts from the operational phase of the project (e.g. post construction). The purpose of this MOMP is to inform any changes that need to be made to Ports North's current operational plans as a result of the project.

In the context of increased shipping activities and movements that will accrue from the CSD project, it should be recognised that management controls and actions for shipping and maritime activities in Port of Cairns are already in place. This document presents as an overview which makes reference to the existing management plans and in response to the EIS Terms of Reference (ToR).

The purpose of this MOMP is to identify the preferred means of addressing issues associated with changes in maritime operational activities (operational shipping) as a result of the project and reduce the potential for negative impacts on the environment, vessel safety and operational efficiency.

Chapter C3 (Vessel Transport Management Plan) has been prepared to assess and manage impacts from the construction phase of the project (e.g. mobilisation, construction and demobilisation).

C4.3 Scope

This MOMP has been prepared for the project in accordance with the MSQ Guidelines for Major Development Proposals (DTMR 2013).

This MOMP:

- describes Ports North's existing management arrangements for maritime activity management, environmental performance and the reduction of potential adverse impacts
- specifies the management actions that would be taken to achieve the performance objectives
- identifies corrective actions to rectify any deviation from performance criteria
- provides an action program to ensure the environmental commitments are implemented and achieved
- provides mechanisms for complaints management, community engagement and on-going improvement.

This MOMP only applies to the operational shipping that is under Ports North's control. This MOMP does not apply to maintenance dredging activities which are subject to a separate approvals process under relevant Commonwealth and Queensland legislation.

C4.4 Terms of Reference

This MOMP has been prepared in response to the Queensland Government's Cairns Shipping Development Project ToR for an Environmental Impact Statement, November 2012 issued by the Coordinator General Section 4.3.3 and the Commonwealth Guidelines for an Environmental Impact Statement for the Cairns Shipping Development (Trinity Inlet) Project, In Port of Cairns and Great Barrier Reef Marine Park, Queensland, March 2013 Section 5.10.11.

This MOMP also provides the management plans required by MSQ Guidelines (DTMR 2013):

- Vessel Traffic Management Plan
- Aids to Navigation Management Plan
- Ship-sourced Pollution Prevention Management Plan.

These management plans are combined in this document to reduce duplication and improves the ease of implementation, thereby ultimately increasing the effectiveness of the management actions over the long term.

C4.5 Legislation and Policy

The MOMP has been developed based on the following legislation and policies at the time of writing this document.

C4.5.1 Commonwealth Legislation

The key Commonwealth legislation that has been identified as relevant to port operations (and its planning and development) of facilities (including Acts implementing relevant international conventions) include:

- *Australian Maritime Safety Authority Act 1990*
- *Great Barrier Reef Marine Park Act 1975* and Regulations 1983
- *Maritime Transport and Offshore Facilities Security Act 2003* and Regulations 2003
- *Navigation Act 1912*
- *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*
- *Ship Registration Act 1981*
- *Biosecurity Act, 2015.*

A number of international conventions agreed by the Commonwealth apply to the management of shipping in Australian waters. These include:

- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (IMO 1972)
- International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (IMO 2004)
- International Convention for the Prevention of Pollution from Ships (IMO 2011)
- International Convention on Oil Pollution Preparedness, Response and Cooperation 1990 (IMO 1990)
- International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001 (IMO 2001)
- Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances 2000 (IMO 2007).

Commonwealth plans and guidelines also to be considered include:

- North-East Shipping Management Plan (AMSA 2014)
- Australian Ballast Water Management Requirements Version 5, 2011 (DAFF 2011)
- Australian Marine Pest Monitoring Guidelines Version 2.0 2010 (DAFF 2010)
- Australian Marine Pest Monitoring Manual Version 2.0 (DAFF 2010)
- National Plan to Combat Pollution of the Sea by Oil and Other Hazardous and Noxious Substances (AMSA 2010)
- National Biofouling Management Guidelines for Commercial Vessels, 2009 (Commonwealth of Australia 2009).

C4.5.2 Queensland Legislation

The following Queensland legislation has been identified as directly relevant to port operations and development of associated facilities:

- *Maritime Safety Queensland Act 2002* and Regulation 2002
- *Marine Parks Act 2004* and Marine Parks (Great Barrier Reef) Zoning Plan
- *Transport Operations (Marine Safety) Act 1994* and Regulations 2004
- *Transport Operations (Marine Pollution) Act 1995* and Regulations 2008
- *Transport Infrastructure Act 1994*
- *Work Health and Safety Act 2011*.

C4.5.3 Port Procedures

Procedures for the safe passage and handling of vessel traffic at the port are documented in procedures published by MSQ. For the Port of Cairns, the port procedures are documented in the Port Procedures and Information for Shipping Port of Cairns, January 2014 (<http://www.msq.qld.gov.au/Shipping/Port-procedures/Port-procedures-cairns.aspx>).

The *Transport Operations (Marine Safety) Act 1994* enables the RHM to give general directions to ship owners, ship masters, ships, other persons or matters for purposes of ensuring the safety, effectiveness and efficiency of the Queensland maritime industry.

C4.5.4 Other Regulations, Codes and Guidelines

MSQ has developed guidelines for major development proposals, in the form of management plans for vessel traffic, aids to navigation and ship-sourced pollution prevention. These guidelines have been adopted in the preparation of this MOMP.

The following are also applicable to vessel operations:

- AS3846-2005 Handling and transport of dangerous cargoes in port areas (Standards Australia, 2005)
- Extreme Weather Event Contingency Plan – Cairns (DTMR, November 2013)
- First-strike Oil Spill Response Plan – Port of Cairns (A supplement to the Queensland Coastal Contingency Action Plan) (DTMR, 2011a)
- International Association of Marine Aids to Navigation and Lighthouse Authorities guidelines (IALA-AISM, 2011)
- International Maritime Organisation (IMO) regulations
- International Maritime Dangerous Goods Code
- International Ship and Port Facility Security Code
- International Convention for the Prevention of Pollution from Ships (MARPOL)
- PIANC guidelines for navigation.

C4.6 Site Location and Existing Management

C4.6.1 Site Context

The Port of Cairns is situated on the western bank of Trinity Inlet, a mangrove-lined estuary adjacent to the city of Cairns, Queensland. The port lies on the eastern border of the Cairns CBD. The land immediately surrounding the port is a mix of industrial and commercial uses. There are a small number of residential apartments and short-term accommodation options in close proximity to the Cairns Cruise Liner Terminal (CCLT). There are also a number of people who live aboard boats moored in the Inlet. East Trinity, an undeveloped environmental reserve, lies opposite the port on the eastern side of Trinity Inlet and the fringing mangroves and distant hill slopes provide a green backdrop to the city of Cairns.

The current Port of Cairns navigational channel extends into Trinity Bay, which forms part of the Coral Sea. Refer to **Figure C4-1** which shows the proposed channel design while **Figure C4-2** shows the proposed land-based Northern Sands Dredge Management Placement Area (DMPA) and associated infrastructure, and **Figure C4-3** shows the Tingira St Stiff Clay barge ramp and DMPA.

Figure C4-4 shows Cairns region vessel traffic data for the year 2013. **Figure C4-5** shows Cairns Port Limit and Pilotage Areas.

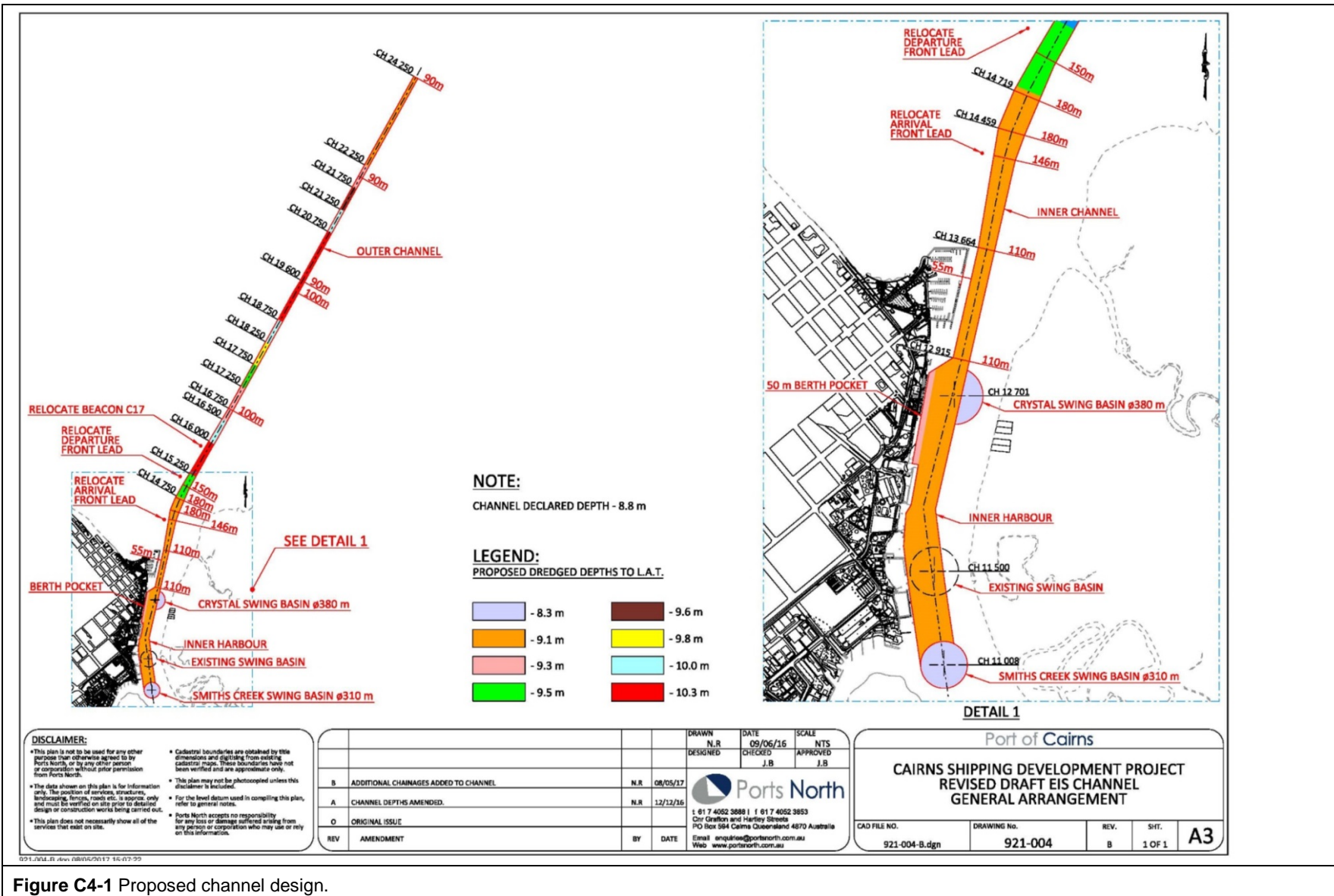
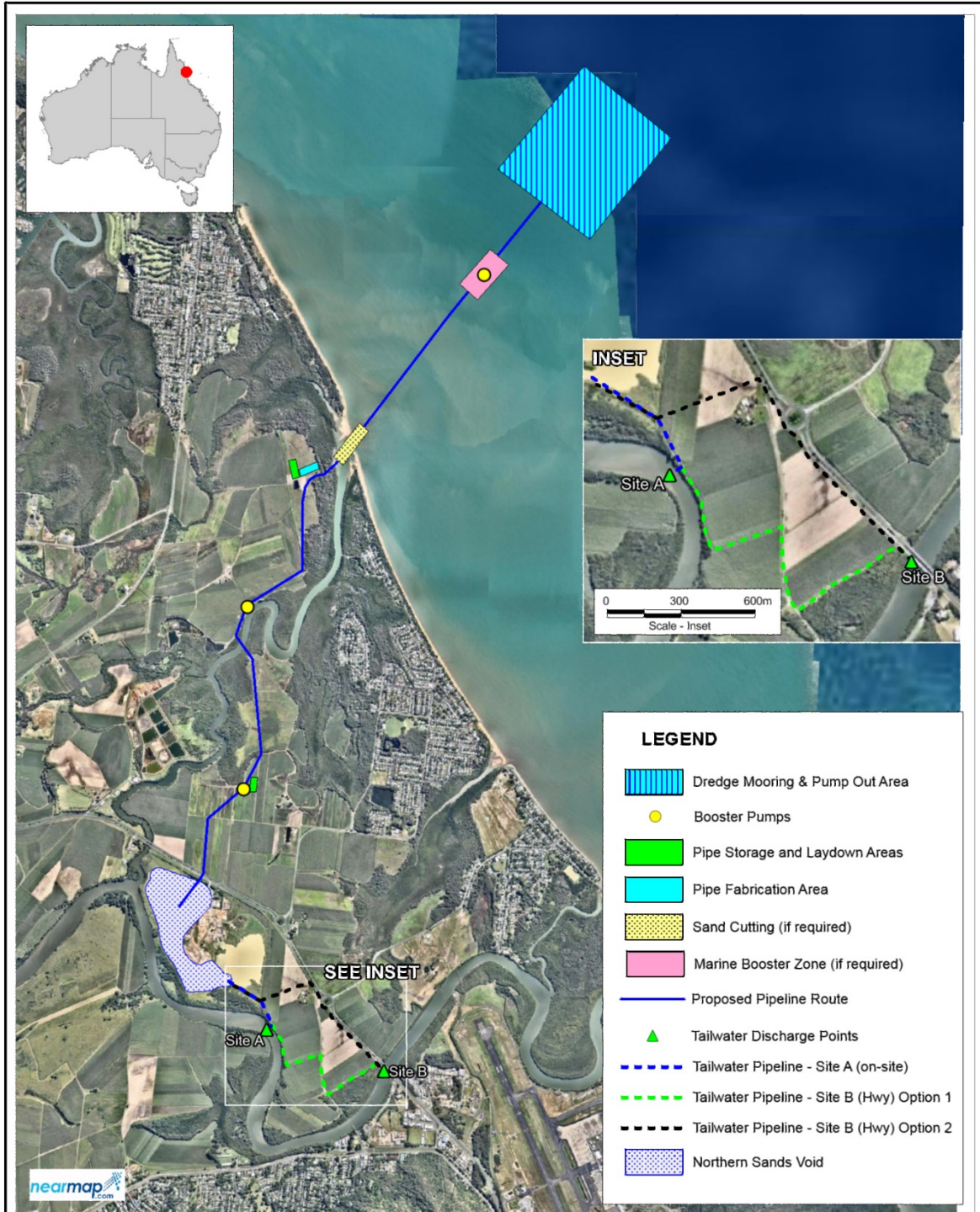


Figure C4-1 Proposed channel design.



Title:
Northern Sands Dredge Material Placement Configuration

Figure:
C4-2

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A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



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Approx. Scale



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Figure C4-2 Northern Sands Dredge Material Placement Area configuration.

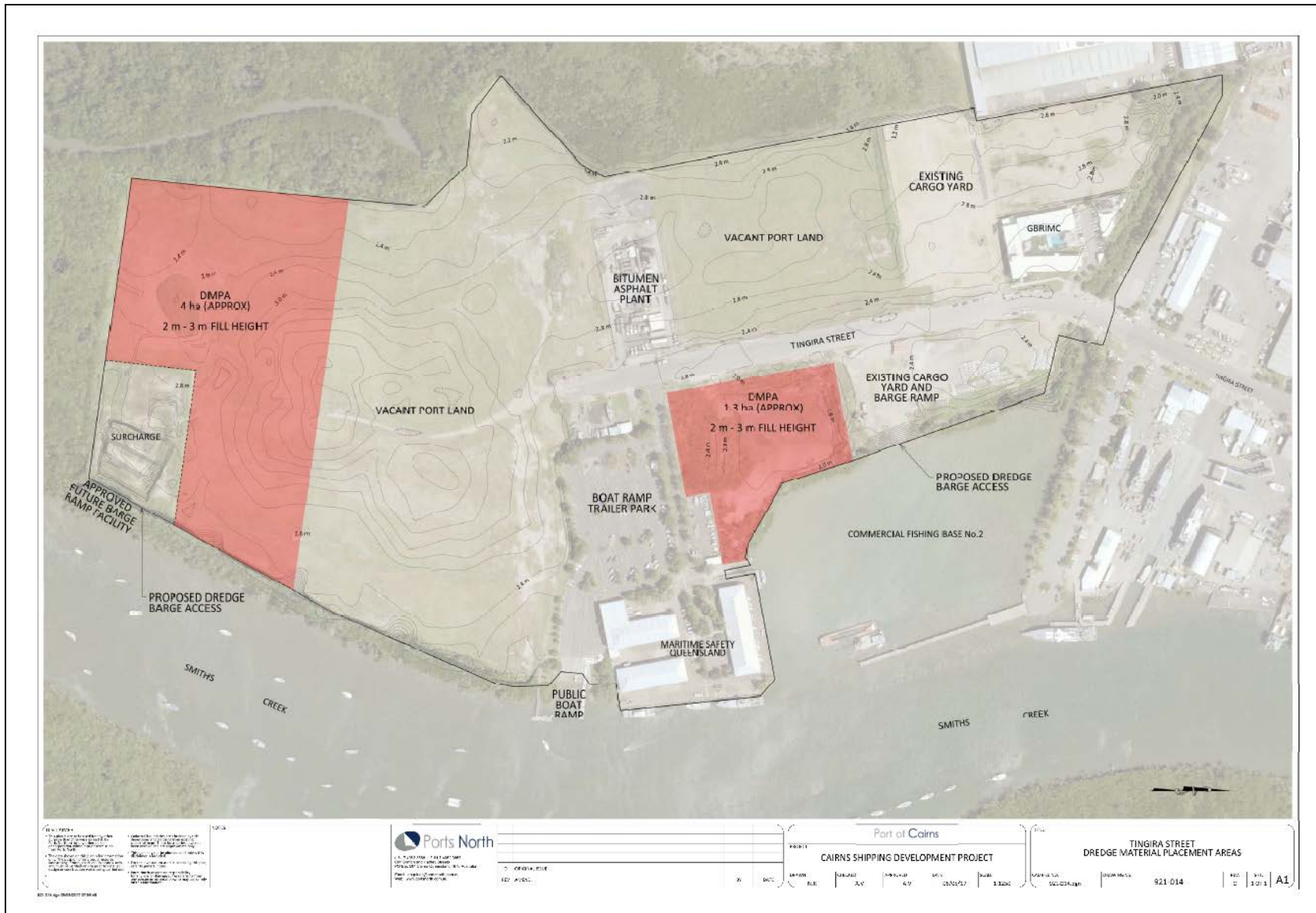


Figure C4-3 Tingira Street Dredge Material Placement Area configuration.

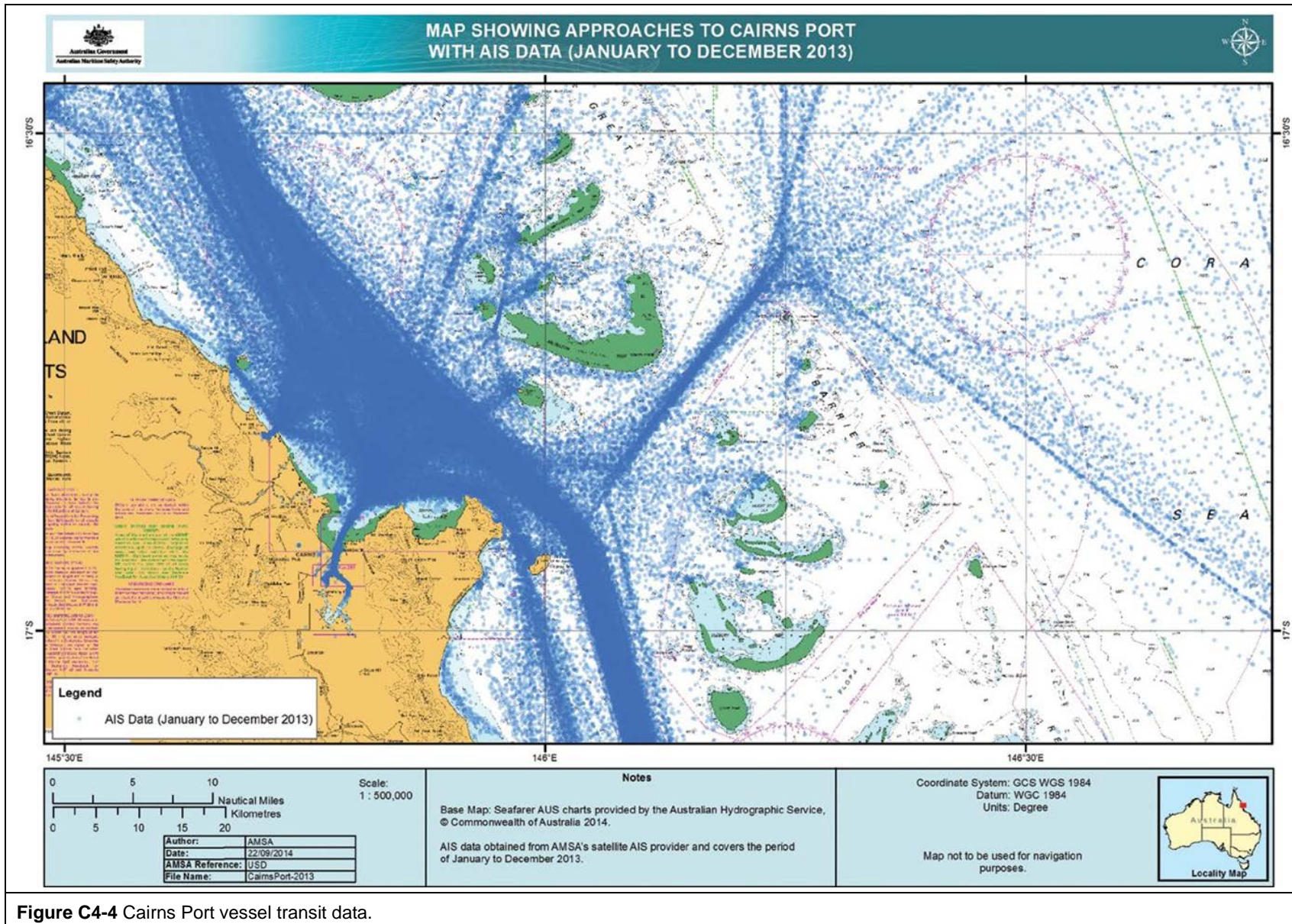


Figure C4-4 Cairns Port vessel transit data.

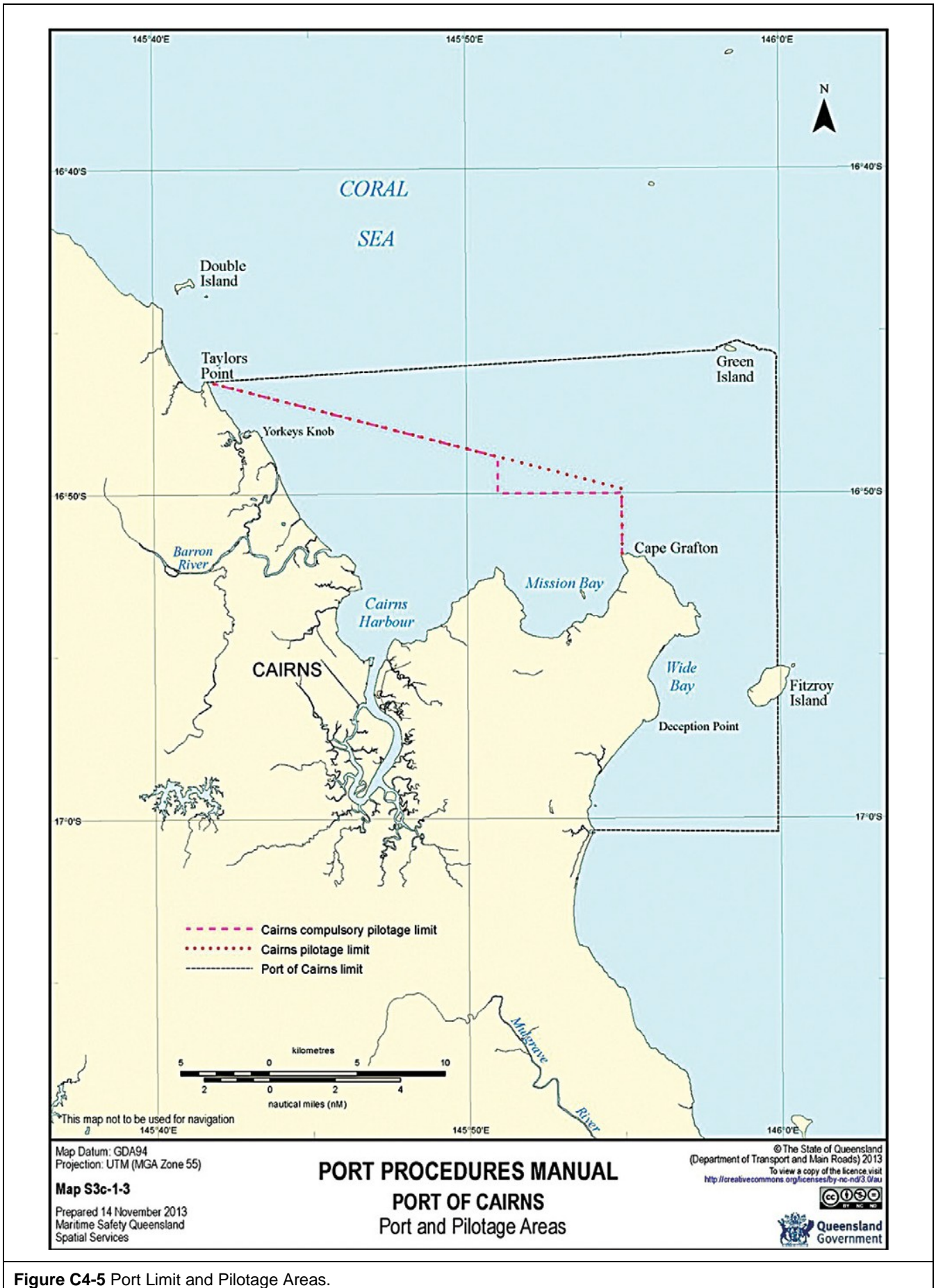


Figure C4-5 Port Limit and Pilotage Areas.

C4.6.2 Environmental Management System

Ports North operates under an Environmental Management System (EMS) that is consistent with the international standard ISO 14001. This system aligns with other business processes so that management addresses all risks, including safety, business and environment in a consistent and comprehensive manner. Ports North's EMS enables identification and prioritisation of activities undertaken by Ports North that could impact on the environment, such as dredging, project development and management of contractors and then enables Ports North to assess these for potential risk and implement management controls or actions to prevent or minimise impacts. A register of risks and treatments plans is maintained for all significant risks. This information is reviewed and reported to senior management regularly. A key element of the EMS implementation is maintaining legal compliance and continuous improvement in environmental performance by conducting prioritised environmental audits and inspections of operations, contractors, major development and maintenance projects so that risks associated with these are identified and so that verification of relevant permits, licences and project objectives are being achieved.

C4.6.3 Environmental Policy

The environmental policy of Ports North applies to Ports North lands including common user areas. It is displayed at prominent areas in the workplace of Ports North employees and on Ports North's website. It is communicated to Ports North's employees during induction and training. The Environmental Policy is reviewed regularly.

Ports North's personnel, contractors and visitors must comply with the intent of the policy. The Environmental Policy states:

Ports North is responsible for nine port locations including trading ports of Cairns, Mourilyan, Cape Flattery, Karumba and Skardon River), community ports (Thursday Island and Quintell Beach) and non-trading ports (Cooktown and Burketown).

Ports North strives to operate a viable business that considers financial, environmental and social impacts by identifying and implementing initiatives that promote excellence in environmental management at these ports.

To demonstrate environmental leadership, Ports North will:

- *Implement and maintain an environmental management system to meet the standard set by AS/NZS ISO14001:2004, as a tool for continual improvement in environmental performance;*
- *Comply with relevant environmental laws, regulations, policies, procedures and standards;*
- *Identify, assess and minimise environmental risk and impacts of port activities;*
- *Integrate environmental considerations and principles of sustainable development into management processes and decision making;*
- *Maintain emergency, fire protection, security systems and infrastructure to protect the environment;*
- *Strive to use resources efficiently, minimise waste and prevent pollution;*
- *Apply sufficient and appropriate people and resources to achieve this Environmental Policy;*
- *Define, measure and report regularly against objectives and targets and review the effectiveness of performance;*
- *Communicate this policy to staff and stakeholders to build collaborative relationships to promote superior environmental outcomes.*

The Chief Executive Officer and senior management are responsible for providing the leadership to support effective implementation of this policy and for ensuring all Ports North's staff, contractors and those engaged by the organisation are required to comply with it. This policy is regularly reviewed following legislative or organisational changes, or at a minimum of every three years, to ensure it reflects the nature and potential impacts of port activities and services.

C4.7 Maritime Operations Management Plan Structure

C4.7.1 Management Issues

The following items have been identified in the EIS TOR (Queensland and Commonwealth Guidelines) and MSQ Guidelines for Major Development Proposals (DTMR 2013). These items, in **Table C4-1**, provide a summary of the components of the MOMP. The plan structure is based on the MSQ guidelines.

TABLE C4-1 MOMP COMPONENTS

MOMP Section Reference	Management Issues	Scope
Vessel Traffic Management Plan (4.8)		
C4.8.1	Vessel Management in Navigation Areas	Design, dredging and maintenance of navigation channel.
C4.8.2	Marine Operations Management Systems	On-going review of systems for the management of marine systems.
C4.8.3	Marine Operations Resources (Physical and Human Resources)	Resources planning to manage and undertake marine operations.
C4.8.4	Emergency Management Emergency Management	On-going review of plans and procedures for the management of risk and emergency responses for shipping.
C4.8.5	Vessel Strike	Reduce the potential for contact between marine fauna and ships.
Aids to Navigation Management Plan (4.9)		
C4.9.1	Aids to Navigation	Design, installation and maintenance of navigation aids.
Ship-Sourced Pollution Prevention Management Plan (4.10)		
C4.10.1	Release of Ballast Water and Introduction of Exotic Marine Organisms	Management of the release of ballast water and exotic marine organism introduction.
C4.10.2	Release of Shipping Waste	Management of the transport of waste from ship to shore and prevention of illegal dumping and accidental release.
C4.10.3	Spills and Ship Sourced Pollution	Measures to prevent spills and actions required in the event of spills. Preventing any release of substances from shipping.

C4.7.2 Management Strategies

For each element of the MOMP, a management strategy and actions have been developed to address potential risks that may arise. Each element has stated environmental objectives, performance criteria, management actions and monitoring and corrective measures. The structure is outlined in **Table C4-2**.

TABLE C4-2 MANAGEMENT STRATEGY COMPONENTS

Management Strategy Component	Description of Content
Element	The aspects of operational shipping requiring management consideration.
Potential impacts	The potential impacts of the element without management.
Performance objective	The target or aim to be achieved.
Performance indicators	The measureable criteria (outcomes) against the implementation of the actions.
Monitoring and reporting	The required monitoring program to measure actual performance and the reporting of it.
Management actions	The strategies or tasks that is required to achieve the performance criteria.
Responsibility	The entity that is responsible to implement each management action.
Timing	The frequency at which management actions need to be implemented.
Corrective action	The action to be implemented if a performance requirement is not met.

C4.8 Vessel Traffic Management Plan

This section of the MOMP identifies specific management plans relating to vessel navigation as a result of the project. In most cases, the management actions will need to be integrated into wider site-based management plans and any conditions of approvals granted for the project.

There is no change to the anchorage procedures for operational vessels; therefore this MOMP does not include vessel anchorage.

C4.8.1 Vessel Management in Navigation Areas

Element	Vessel management in navigation areas
Potential impacts	<p>Potential grounding of vessel.</p> <p>Potential economic losses due to shipping channel closure as a result of vessel grounding.</p> <p>Potential marine pollution as a result of vessel grounding.</p>
Performance objective	<p>Design and development of navigation areas for the project and shipping operations are to be in accordance with approved design, standards and port procedures.</p> <p>Shipping activities in accordance with port procedures and North-East Shipping Management Plan (AMSA 2014).</p>
Performance indicators	<p>Design of navigation channel and turning basins to achieve safe vessel navigation.</p> <p>Dredging works to achieve minimum navigation design depth.</p> <p>Declared depths available at all times and preserved by maintenance dredging.</p> <p>Safe vessel arrival and departure.</p> <p>Dissemination of information of updated navigation areas.</p>
Monitoring and reporting	<p>Design to be undertaken in accordance with MSQ and RHM design review, input and quality control procedures.</p> <p>Confirmation of dredging works complies with the approved design.</p> <p>Vessel monitoring through VTS system and pilotage procedures.</p>

Management actions	Responsibility	Timing	Corrective actions
Confirmation of design vessels for detail design process.	Ports North.	Prior to detail design process.	Review business case.
Detail design of navigation areas in consultation with RHM and with navigation simulation.	Ports North in consultation with RHM.	Detail design to be undertaken and approved by the RHM prior to dredging works.	Review navigation design procedures, verification and risk assessment.
Review minimum ship underkeel clearance (UKC) requirements.	Ports North in consultation with RHM.	During detail design and approved by the RHM prior to dredging works.	Review minimum UKC for similar ships in other ports.
VTS system and pilotage procedures in place and implemented.	RHM, MSQ.	Prior to commencement of navigation through the outer channel and prior to vessel departure from berth.	Review and update VTS system and pilotage procedures, along with port procedures.
Undertake capital dredging works.	Ports North in consultation with RHM.	To suit implementation program for capital dredging.	Review navigation areas design and depth requirements for design vessels.
Undertake maintenance dredging works.	Ports North in consultation with RHM.	Ongoing.	Review and keep up to date approvals for maintenance dredging and material placement
Hydrographic survey works in accordance with MSQ Standards for Hydrographic Surveys in Queensland Waters.	Ports North.	For every hydrographic survey works.	Undertake independent hydrographic survey.
Update marine charts.	The hydrographic surveyor to inform the Australian Hydrographic Service of new information.	At completion of capital dredging works.	Issue notice to mariners as a temporary measure advising new navigation areas.
Regular monitoring of navigation areas by hydrographic survey.	Ports North in consultation with RHM.	At intervals according to design, following extreme weather events and following dredging works.	Increase frequency and additional surveys following extreme weather events.

C4.8.2 Marine Operations Management Systems

Element	Marine operations management systems		
Potential impacts	Collision, grounding, congestion or delays to shipping traffic as a result of uncoordinated shipping activities.		
Performance objective	Adequate marine operations management system to provide safe and efficient navigation operations.		
Performance indicators	Prevention of vessel incidents from operational marine traffic. Prevention of vessel near misses from operational marine traffic. Prevention of delays for vessels arriving or departing.		
Monitoring and reporting	Reporting of incidents, near misses and delays. Regular monitoring and periodic review of records to determine efficiency of systems.		
Management actions	Responsibility	Timing	Corrective actions
Review of marine operation management systems to ensure that systems and resources are appropriate for the growth in shipping traffic.	Ports North in conjunction with MSQ.	Prior to development of the project and annually thereafter.	Critical review of marine management systems for adequacy.
Review the adequacy of VTS systems and resources for increased shipping traffic.	MSQ and RHM.	Prior to development of the project and annually thereafter.	Critical review of marine management systems for adequacy.
Provide relevant and updated information to the RHM as inputs to the ongoing review and update of the Port Procedures and Information for Shipping for Port of Cairns.	MSQ	Ongoing.	RHM's approval prior to any updates to Ports North's operations or procedures.
Review requirements for real time information systems pertaining to wind and tides and the dissemination of this information to ships.	Ports North and MSQ.	Ongoing.	MSQ to undertake audit of available technology and information resources available to improve real-time monitoring & dissemination of the info.
Review future channel operation procedures when warranted by increased ship movements.	Ports North and MSQ.	When frequent delay trends are observed.	RHM and MSQ to verify predicted shipping levels and assess delay reports to assist in updating of operation procedures.
Review the requirements for using tugs to assist manoeuvring of vessels.	Ports North and RHM.	Ongoing.	RHM to review and update port procedures.
Review of pilotage procedures and pilot exemptions.	RHM.	Ongoing.	RHM to review and update pilotage procedures.

C4.8.3 Marine Operations Resources (Physical and Human Resources)

Element	Marine operations resources (physical and human resources)		
Potential impacts	Inefficient port operations due to ship queues causing delays Potential for environmental impact from ship pollution if delays in responding with appropriate measures Potential exasperation of emergency situation Delays for processing of passenger immigration clearance Delays in responding to border protection matters.		
Performance objective	Plan resource levels for marine services to provide safe and efficient operations in the port.		
Performance indicators	Adequate resources for marine services available to support safe vessel navigation Achieve or exceed marine operations service level for vessel operations Adequate emergency equipment to be available for likely emergency situations.		
Monitoring and reporting	Any damage or unavailable resources to be reported immediately to Ports North Resources to be monitored for maintenance and upgrades as required Monitoring and management of the adequacy of human resources.		
Management actions	Responsibility	Timing	Corrective actions
Monitoring of shipping requirements and forward planning of resource requirements for: <ul style="list-style-type: none"> • Staff numbers of Ports North and MSQ to manage marine operations • Staff numbers for Customs, Immigration and Quarantine operations • MSQ VTS Centre • Number of pilots • Number of pilot launches • Tug fleet number and capacity • Navigation aids • Staff numbers for wharf operations. 	Ports North in conjunction with MSQ, RHM and Department of Immigration and Border Protection (Border Force).	Ongoing	Independent assessment of predicted shipping requirements. Consultation with vessel suppliers to understand the constraints and plan for improvements. Consultation with shipping companies / operators to understand service level. Consultation with Border Protection agencies as appropriate. Consider use of technology and/or process for reduction in staff numbers.
Monitoring of shipping requirements and forward planning of resource requirements for Bunkering & Ship supplies.	Operator.	Annually.	Consultation with Ports North and shipping companies to understand future shipping requirements.

C4.8.4 Emergency Management

Element	Emergency management
Potential impacts	Potential exacerbation of emergency situations due to inadequate or inappropriate response and management Potential further environmental impact from ship pollution if inappropriate emergency management plan in place.
Performance objective	Assess, prevent and manage emergencies including post emergencies that may occur.
Performance indicators	Prevention of emergency situations through proactive measures Early detection of potential or actual emergency situations through effective processes, monitoring and communication Quick and effective response to emergency situations and recovery from events Availability of First-Strike Response Equipment Adhere to the Emergency Management Plan at all times.
Monitoring and reporting	Emergencies are to be reported and monitored in accordance with existing Ports North emergency management plan requirements which require escalating levels of agency and community reporting depending on circumstances.

Management actions	Responsibility	Timing	Corrective actions
Ongoing review of emergency management plan, resource levels and equipment with the development of the project increased shipping traffic, operational vessels and equipment.	Ports North.	Ongoing.	Plans and procedures to be reviewed at set periods and more frequently.
The emergency management plans are to ensure that there are appropriate prevention, detection, response and recovery measures to protect safety and the environment.	Ports North.	Prior to completion of the capital works for the project.	Review response plans following emergencies or increase periodic review of plans.
Undertake review/update of Emergency Plans for: <ul style="list-style-type: none"> • Ports North Emergency Response Plan • Extreme Weather Event Contingency Plan • Cairns First- Strike Oil Spill Response Plan – Port of Cairns. 	Ports North or MSQ.	Prior to completion of the capital works for the project.	Review response plans following emergencies or increase periodic review of plans.
Review minimum requirements for First-Strike response equipment.	MSQ.	Ongoing.	If equipment is found to be inadequate or inappropriate in an emergency, undertake audit/review to identify equipment gaps to be filled as a priority.
Availability of and easy access to the Emergency Management Plan.	Ports North and MSQ.	Ongoing.	Review the availability and access to the Emergency Management Plan. Include in staff inductions and toolbox meetings.

C4.8.5 Vessel Strike

Element		Vessel strike	
Potential impacts		Marine wildlife mortality and or injury.	
Performance objective		Vessel strike to marine fauna avoided or minimised to the greatest practical extent.	
Performance indicators		Vessel strike with marine fauna as a result of vessel movements is avoided or minimised.	
Monitoring and reporting		Ensure any fauna injury or mortality during vessel movement or dredging is immediately reported to Ports North. Ports North will ensure that the relevant regulatory agencies are informed of any incident in accordance with existing procedures and permits issued.	
Management actions	Responsibility	Timing	Corrective actions
Port users are to comply with maritime signage and regulations, including use of designated shipping channels and speed limits.	Port users in accordance with mooring agreements, Port Notices and relevant legislation.	Reporting by exception and compliance at all times.	Assist relevant agencies to investigate incidents. Review control measures to ensure effectiveness.
Management Actions in the Dredge Management Plan, and sub-ordinate EMPs for the construction phase in respect of Vessel Strike to Marine Fauna are enacted	Ports North and appointed contractors	During site mobilisation, construction, and de-mobilisation phases, including dredging, barge operations, support vessels and wharf upgrade works,	As outlined in the respective portions of the DMP and specific EMPs
Implement incident response procedures.	Ports North and port users to report any vessel strike to the Queensland Department of Environment and Heritage Protection (DEHP).	During and following incident.	Review the management actions of this MOMP.

C4.9 Aids to Navigation Management Plan

This section of the MOMP identifies specific navigational management strategies and actions related to vessel movement's resulting from the project.

The project will require changes to navigational aids. In most cases, management actions will need to be integrated in broader site-based management plans and documentation to incorporate any conditions of approval granted for the project under relevant legislation.

Ports North will ensure these requirements are addressed and met for the activities to be carried out within Ports North controlled areas, consistently with any existing procedures, guidelines or permits.

C4.9.1 Aids to Navigation

Element	Aids to navigation
Potential impacts	Ship collisions with potential human safety, damage to property and environmental consequences.
Performance objective	To design, install, maintain and manage navigation aids to support safe and efficient navigation in the outer channel and inner harbour.
Performance indicators	Safe navigation for shipping Safe navigation for boating including recreational, tourism and commercial fishing.
Monitoring and reporting	Navigation aids to be regularly monitored and maintained to ensure they are fully functional as intended Any navigational aid that is damaged, broken or not operating as intended to be reported to Ports North and RHM.

Management actions	Responsibility	Timing	Corrective actions
Design of navigation aids to be undertaken in consultation with RHM and in accordance with IALA Guidelines.	Ports North and RHM.	During detail design and prior to construction start of the project.	Design review/verification.
Update MSQ to support the revision of marine charts and Notice to Mariners by providing detailed drawings with coordinates of new, removed or relocated navigation aids.	Ports North.	As soon as possible following any installation of new or removal /relocation of any navigation aids.	Re-survey of navigation aids location.
Install additional channel markers (similar to existing) to demarcate the channel extension and new channel entrance.	Ports North and RHM.	Prior to completion of the project.	Review number, location and type of channel markers.
Move arrival front lead to new location.	Ports North and RHM.	Prior to completion of the project.	Review location and type.
Remove current departure front lead.	Ports North and RHM.	Prior to completion of the project.	Review alternatives.
New departure sector light at position of departure rear lead beacon	Ports North and RHM.	Prior to completion of the project.	Review location and type.
New sector light on sugar shed for the inner port.	Ports North and RHM.	Prior to completion of the project.	Review location and type.
New weather stations on beacons C2 & C20	Ports North and RHM.	Prior to completion of the project.	Review location and type.
Install marker buoys to demarcate the Crystal and Smith's Creek Swing Basins.	Ports North and RHM.	Prior to completion of the project.	Review number, location and type of marker buoys.
Regular inspection and maintenance of navigation aids.	MSQ.	Prior to the provision of maintenance works or any other management actions.	Undertake audit to identify any gaps.
Install temporary navigation aids and markings around dredge mooring point, pipeline route, barge off load facility where required following RHM's assessment of navigation aid requirements	MSQ	During detail design and prior to construction start of the project.	Design review/verification.

C4.10 Ship-Sourced Pollution Prevention Management Plan

This section of the MOMP identifies specific environmental management measures including strategies, timing and actions related to the shipping activities of the project which have potential impacts on the marine environment. In most cases, management actions need to be integrated in the broader site-based management plans, documentation and any conditions of approval imposed on the project.

Ports North will address and meet these requirements for the activities to be carried out within Ports North controlled areas, consistent with any existing procedures, guidelines or permits.

C4.10.1 Introduction of Exotic Marine Organism

Element	Introduction of exotic marine organism
Potential impacts	Harm to marine ecosystems Incursion of marine pests through ballast water or hull fouling Harm or operational delays or impacts to economic activities (port operations, commercial fishing, tourism).
Performance objective	To reduce the potential for prohibited releases of ballast water to occur To reduce the potential for environmental harm to marine environments as a result of release from shipping, or translocation on foreign arriving vessels engaged for construction phase of the project through implementation of appropriate contingency measures.
Performance indicators	No incidents of environmental harm involving ballast water releases associated with commercial ships using the Port of Cairns Ballast summary sheets to be provided to Maritime National Coordination Centre for relevant shipping.
Monitoring and reporting	Ballast water movements must be recorded in ship manuals for verification consistent with Department of Agriculture and Water Resources (DAWR)/Australian Maritime Safety Agency (AMSA) requirements Identification of exotic or foreign species in port waters will be recorded in Ports North’s database and advise given to DAWR/Biosecurity Queensland accordingly Ports North to continue to facilitate access by agency staff (Biosecurity Qld, Department of Agriculture and Water Resources, etc.) to enable such staff to conduct their inspections and monitoring for the presence of marine and terrestrial pests as part of routine border protection surveillance Ports North to maintain existing surveillance for potential new incursions through its existing marine pest settlement plate program, and the annual SAP process as required under NAGD or other such programs as they come into effect under agency requirements.

Management actions	Responsibility	Timing	Corrective actions
International vessels are to comply with DAWR reporting requirements for ballast water exchange/discharge and biofouling.	Ship owner/operator, DAWR and Biosecurity Queensland.	Prior to entry into port.	DAWR to recommend necessary corrective or disciplinary actions as required.
Full ballast water exchange to occur outside Australian territorial waters and the Great Barrier Reef Marine Park (GBRMP).	Ship owner/operator to ensure only the following approved methods are used: Sequential exchange (empty/refill) method Flow through exchange method Dilution exchange method.	Prior to entering Australian territorial waters. No exchanges in the Great Barrier Reef Marine Park (GBRMP). International ships cannot exchange ballast water until in international waters (12 nautical miles from the edge of the GBRMP). Ballast water cannot be exchanged in the	AMSA carry out audits of ballast tanks to confirm that the ships have complied with these conditions. IMO rules are to be implemented: http://www.imo.org/Pages/home.asp
Tank-to-tank shipboard ballast water exchanges to be outside Australian territorial waters.	Ship owner/operator.	Prior to entering territorial waters. Tank to tank transfers are permissible in territorial waters, however, it is ideal they are conducted at the maximum distance possible from land.	Transfer is to stop if unauthorised discharge occurs in Australia waters. Authorities are to be notified and will advise of the next appropriate action commensurate with the level of risk.
Sediment discharges in ballast water to occur outside Australian territorial waters.	Ship owner/operator to ensure that no sediment is discharged in Australian waters.	Ongoing.	Sedimentary material from ballast tanks may be landed as quarantine waste in some Australian ports, or it can be dumped back into the sea in deep water, which is at least 200m deep and outside the 12nm limit, but preferably beyond 200nm from land.
Only permanent vessel pumps used for ballast tank stripping.	Ship owner/operator to ensure ballast tank stripping is only undertaken via permanent vessel pumps.	Ongoing.	If ship does not have pumps capable of stripping ballast, they will be unable to dump ballast. No portable pumps can be used due to potential contamination.

Management actions	Responsibility	Timing	Corrective actions
Ballast Water Management Plans to be carried by vessels.	Ship owner/operator to ensure vessels carry Ballast Water Management Plans.	Ongoing.	<p>Australian Ballast Water Management Requirements are enforceable under the Cth <i>Biosecurity Act 2015</i>.</p> <p>Ships without a Ballast Water Management plan may be refused entry.</p>

C4.10.2 Release of Shipping Waste

Element	Release of shipping waste
Potential impacts	Harm to marine life through entanglement and/or ingestion Harm to recreation and tourism through degradation of visual amenity Harm to human health through release of sewage Potential marine pollution as a result of accidental discharge from vessel within port limits Damage to environmental management reputation of Ports North.
Performance objective	To prevent or reduce the release of shipping waste into the marine environment.
Performance indicators	Waste releases into the marine environment are in accordance with relevant laws and standards No complaints from public or government agencies regarding noticeable waste, as a result of shipping activities.
Monitoring and reporting	Regular visual inspections of wharf areas Any complaints or waste release incidents will be recorded in Ports North’s database in order to identify areas for actions or improvement.

Management actions	Responsibility	Timing	Corrective actions
<p>Vessels are to carry and maintain Garbage Record Books.</p>	<p>Ship owner/operator.</p> <p>MARPOL requires ships of ≥ 400 gross tonnage and every ship certified to carry ≥ 15 persons to have a garbage record book to record disposal and incineration operations.</p> <p>The date, time, position of ship, description of the garbage and the estimated amount incinerated or discharged must be logged and signed.</p>	<p>Ongoing.</p> <p>The Garbage Record Book must be kept for a period of two years after the date of the last entry.</p>	<p>Ports North and AMSA to notify ship owner/operator of obligations.</p>
<p>Commercial vessels required to carry a Garbage Management Plan.</p>	<p>Ship Owner/operator.</p> <p>All ships of ≥ 100 gross tonnage and every ship certified to carry ≥ 15 persons. The Garbage Management Plan designates the person responsible for carrying out the plan and is in the working language of the crew.</p> <p>The Garbage Management Plan is to include written procedures for collecting, storing, processing and disposing of garbage, including the use of equipment on board.</p>	<p>Ongoing.</p>	<p>Ports North and AMSA to notify ship owner / operator of obligations.</p> <p>Garbage Management Plans are subject to inspection by State or Commonwealth officials.</p>
<p>No discharge of sewage at sea unless at appropriate distance from land.</p> <p>No discharge of ground food waste within 3nm of the GBRMP boundary</p> <p>No discharge of non-ground food waste or cargo residues within 12 nm of GBRMP boundary.</p> <p>The treatment, quality and distance requirements for different vessel types are stipulated by GBRMPA and MSQ requirements.</p>	<p>Ship owner/operator and MSQ. The regulations in Annex IV of MARPOL and the requirements of MSQ prohibit the discharge of sewage into the sea within a specified distance of the nearest land, unless they have in operation an approved sewage treatment plant.</p>	<p>Whenever discharging sewage to sea.</p>	<p>Ships seeking to discharge sewage must move to the appropriate offshore distance prior to discharge, in accordance with MARPOL, GBRMPA, QLD DEHP and MSQ requirements.</p>

Management actions	Responsibility	Timing	Corrective actions
Non-Cargo Liquid Transfer Notifications to be prepared for the transfer of any non-liquid cargo.	Ship owner/operator. Notification to be submitted to the RHM's office.	Must be submitted to the RHM's office prior to conducting non- cargo liquid transfer operations in the port. It is the responsibility of the vessel's Master to notify Port Control and VTS prior to commencing transfer and at completion of transfers.	If no notification occurs then no liquid waste transfer can legally occur. If the transfer is still required, the RHM must be notified.
Inspections of Non-Cargo Liquid Transfer operations.	MSQ.	Prior to undertaking non-cargo liquid transfers. Inspections, if required, will be arranged one hour before the start of transfer operations by MSQ contacting the ship's Master.	Undertake inspections for non-cargo liquid transfers.
No wastes to be discharged to port waters.	Ports North, ship operators and DAWR.	Ongoing.	Informal surveillance and reporting of nonconformities. Garbage record book checks by DAWR.
Provision of port side bins.	Ports North.	Ongoing.	Review port side waste bin types and quantities and rectify.
Provision of quarantine waste bins.	Ports North and ship operator.	Ongoing.	Review requirements for quarantine waste generation and amend provided facilities as necessary.

C4.10.3 Ship Sourced Spills and Pollution

Element	Spills
Potential impacts	Impacts on water quality Mortality or long-term impacts on sea birds, marine mammals and coastal and marine habitats Damage to commercial fishing resources Impacts on tourism and recreational activities Economic loss at both the regional and national level Impacts to public health.
Performance objective	To eliminate or reduce spill of any substance into the marine environment from shipping traffic generated by the port Prevent impacts to the marine environment as a result of pollution from shipping activities.
Performance indicators	Accidental releases of any substance into the marine environment are avoided or promptly managed to avoid impacts No complaints from public or government agencies regarding noticeable spills as a result of shipping activities and port operations.
Monitoring and reporting	Opportunistic visual inspection of Ports North’s controlled areas Any complaints or spill release incidents will be recorded in Ports North’s database immediately in order to identify potential adverse impacts Spills to be reported to environmental and public health authorities, in accordance with legislation and port notices, incident reporting requirements.

Management actions	Responsibility	Timing	Corrective actions
Review stochastic modelling during spill event which is beyond First-Strike Response Plan to aid understanding of potential spill area and trajectory to determine appropriate management responses.	Ports North, MSQ, DEHP and AMSA.	Immediately on identification of a spill event beyond First-Strike Response Plan.	Update spill response actions. AMSA to calibrate model based on observed spill behaviours and whether to refine for future events.
All dangerous goods in the port to be handled in accordance with the International Maritime Dangerous Goods (IMDG) Code.	Ports North, Ship owner/operator, tenants and transport companies.	Ongoing.	If handling of dangerous goods is not in accordance with IMDG then handling procedures to be ceased and reviewed. Handling can commence when procedures are in accordance with the code.
A Notification of Transporting and Handling Dangerous Goods (Marine) required for dangerous goods transfers.	Ship owner/operator.	Form is to be lodged at the RHM's office no later than 48 hours before the vessel's estimated time of arrival.	If the form has not been obtained, signed and lodged appropriately, further handling and transport of the goods cannot take place until a legitimate form has been obtained.
Bulk Fuel Transfer Checks to be undertaken for all bunkering.	Ship owner, supplier.	48 hours prior to bunkering.	Bunkering cannot take place until approved.
A Non-Cargo Liquid Transfer Notification is required for the transfer of non-cargo liquids.	Ship owner/operator.	Must be submitted to the RHM's office prior to conducting non-cargo liquid transfer operations in the port. It is the responsibility of the vessel's Master to notify Port Control and VTS before commencing transfers and at completion of transfers.	Ports North to maintain a register of approved operators and conduct appropriate audits.
Refuelling to be undertaken by licensed refuelling operators with appropriate emergency response equipment.	Ports North and port operators/tenants to ensure licensed refuelling operators are used.	Prior to and during refuelling event.	Report breaches to appropriate regulatory authorities. Ports North to maintain a register of approved operators and conduct appropriate audits.

Management actions	Responsibility	Timing	Corrective actions
Follow incident response procedures.	Ports North implements appropriate incident response measures (First-Strike Response Plan). Port users in accordance with mooring agreements for common use areas, tenant leases and port notices.	During and following incident.	Review incident response measures to ensure effectiveness.
Australian system for pilotage to be adhered to for ships requiring pilotage.	Ship owner/operator.	Ongoing.	Report breaches to appropriate regulatory authorities. Ports North to consider issuing penalties as per Port Notices.
Mandatory recording of shipping movements.	MSQ VTS.	Ongoing.	Systems to be reviewed to ensure shipping movements are recorded. Internal and external audits may be required to identify deficiencies.
Shipping activities to consider the prevailing weather conditions.	Ship operator and MSQ.	Ongoing.	Shipping activities to be reviewed, reduced or stopped during weather warning periods.
Cairns Port Emergency Response Plan to be activated in the event of a major spill, as defined under that plan.	Ports North, MSQ and DEHP.	Ongoing.	Review and revise triggers for activation of Emergency Response Plan if current triggers are considered insufficient for changing port conditions.
Queensland Coastal Contingency Action Plan may be activated.	Ports North, MSQ and DEHP.	Ongoing.	Review and revise triggers for activation of Contingency Action Plan if current triggers are considered insufficient for changing port conditions.
No discharge of bilge water at any time. (Bilge water discharge classified as oil spill).	Ship owner/operator.	Ongoing.	Ports North to ensure vessels are advised of bilge water management requirements.
Spoiled cargos and cargo residues to remain on-board ships for removal to onshore.	Ship owner/operator.	Ongoing.	Licensed waste service company to remove soiled cargos.
No discharge of any other substance from any ship unless to licensed contractor.	Ship owner/operator.	Ongoing.	MSQ to investigate and implement corrective action as necessary.

Management actions	Responsibility	Timing	Corrective actions
Reduction of accidental cargo loss through implementation of appropriate cargo storage and handling.	Ship owner/operator.	Ongoing.	Mechanisms for securing cargo to be reviewed by tenants and upgraded as necessary.

C4.11 Action Program

C4.11.1 Continuous Improvement

This MOMP is a 'living document' that will be reviewed regularly and amended as necessary to allow new or changing risks relating to the project to be addressed.

As part of Ports North's overall management systems, feedback systems from monitoring and site management will be in place for the duration of the project to enable the MOMP to be updated and responsive.

Other triggers for the review of this MOMP may include:

- changes to organisational structure and roles and responsibilities
- changes in environmental legislation and/or policies
- new technologies/innovation relevant to applied methods and controls.

C4.11.2 Auditing

Periodic reviews of the implementation of this MOMP will be integrated into existing audit schedules for port operations during the project delivery phase. To enable verification of the implementation, records as outlined in the tables of the preceding sections will be maintained. Records inclusive of the following will be kept to assist in the auditing process:

- ship details, ship origins details and corrective actions included
- records of actions, including any visual inspections, for possible audit by regulating authorities
- Records of shipping and cargo movements
- any other information listed by this plan as requiring retention, including evidence of actions undertaken and signoff from responsible parties that requirements have been fulfilled.

In the event of continual breaches, procedural reviews will be undertaken to identify the underlying cause(s).

C4.11.3 Monitoring

Monitoring for each element is detailed in the management plans. Monitoring will be undertaken according to existing procedures.

This monitoring program will enable:

- early detection of management issues during project delivery phase and shipping operations
- additional information for the port, from which trends and changes from shipping operations can be detected.
- verification of effectiveness of the implementation of the plan and confirmation of risk minimisation.

C4.11.4 Records

Records would be kept of actions taken in regards to this MOMP to enable possible auditing. Records would also encourage the use of preventative action, as well as corrective action following non-compliance.

Environmental records as per Ports North's management system will be:

- kept as objective evidence of compliance with environmental approval requirements
- maintained according to Ports North's record keeping procedure or contractor's record keeping procedure. Records and this MOMP will be controlled in accordance with Ports North's management systems.

C4.11.5 Responsibilities for Implementation

The MOMP complements the material presented in the main body of the EIS for the project as it brings together activity-specific operations management and protection measures under consideration, in particular to support safe and efficient and effective vessel operations in the Port of Cairns.

The MOMP will be progressed at the conclusion of the EIS process, taking into consideration comments from regulatory agencies on the Final EIS and updated prior to the completion of the capital works programme, in order to:

- Provide the framework for management of vessel operations in the Port of Cairns
- Be submitted to address approval requirements under Queensland and Commonwealth legislation.

Once the MOMP is finalised, it will be the primary responsibility of Ports North to implement the plan. It will require Ports North to engage with other relevant authorities, such as MSQ, to seek alignment of their vessel management procedures during the operational phase of the project.

Authorities and agencies in addition to Ports North have been listed in this MOMP as their roles and responsibilities apply to the marine side operational functioning of the Port.

C4.11.5.a Staff Training

Relevant port personnel shall attend an induction before commencement of the plan. The induction shall include the measures contained in this MOMP regarding the operational and environmental commitments and measures relevant to the individual staff positions. Staff attending the induction shall be mentored to ensure commitments will be implemented by the appropriate staff.

C4.11.5.b Enquiries and Complaints Management

General enquiries can be made via Ports North's website using the contact form or e-mail.

General contact details for Ports North:

Telephone: +61 7 4052 3888

Email: enquiries@portsnorth.com.au

After hours emergencies: +61 7 4051 2558

Ports North also maintains a system to record and respond to feedback on matters pertaining to the operation of the port. Such information on complaints and complements can be provided via one of the following contact points:

Mail: Cnr Grafton & Hartley Streets (PO Box 594) Cairns QLD 4870

Email: enquiries@portsnorth.com.au

Telephone: +61 7 4052 3888

Fax: +61 7 4052 3853

Website: <http://www.portsnorth.com.au/contact.php>

C4.12 References

DTMR. 2013 Maritime Safety Queensland Guidelines for Major Development Proposals. Queensland Government: Brisbane.

