VOLUME 3

Draft : Environmental Impact Statement

Chapter C1 Construction and Operational Environmental Management Plan

C1.1	**Purpose**	**2**
C1.2	**Scope**	**2**
C1.2.1	CEMP	2
C1.2.2	OEMP	2
C1.3	**Legislation**	**2**
C1.3.1	Federal Legislation	2
C1.3.2	State Legislation	3
C1.3.3	Client Documents	3
C1.3.4	Other	3
C1.4	**Ports North Environmental Management**	**3**
C1.4.1	Environmental Policy	3
C1.4.2	Environmental Management System	4
C1.4.3	Incident Management	4
C1.4.4	Environmental Monitoring	4
C1.5	**Action Program**	**4**
C1.5.1	Training	4
C1.5.2	Complaints Procedure	4
C1.5.3	Roles and responsibilities	4
C1.5.4	Auditing	5
C1.6	**EMP Elements**	**6**
C1.7	**Environmental Strategies and Management Plans**	**7**
C1.7.1	Surface and Groundwater	7
C1.7.2	Terrestrial Ecology	10
C1.7.3	Noise and Vibration	12
C1.7.4	Air Quality	15
C1.7.5	Visual Amenity and Lighting	18
C1.7.6	Waste Management	20
C1.7.7	Cultural Heritage (Indigenous and Non-Indigenous)	22
C1.7.8	Transport	23
C1.7.9	Climate Change and Greenhouse Gases	24

C1.1 Purpose

This Chapter of the EIS provides a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) to summarise the construction and operational controls that will be implemented for the Cairns Shipping Development Project (CSDP) as described in Chapter A4, Project Description (marine-based disposal option) . This document draws from the mitigation and monitoring recommendations provided within each of the preceding chapters of the EIS. The broad aims of this CEMP and OEMP are to achieve the following:

- Provide practical and achievable plans for complying with environmental requirements
- Demonstrate compliance with relevant legislative obligations
- Outline performance criteria to be met by the Project
- Provide evidence to stakeholders and the community that construction and operation of the Project will be managed in an environmentally sensitive manner
- Specify roles and responsibilities, monitoring regimes and corrective actions.

It will be used to guide detailed design, site establishment and construction of the Project. For a description of the activities to be undertaken in each of these stages, refer to **Chapter A4, Project Description**.

C1.2 Scope

This document applies only to land-based construction and operational activities including services installation, wharf upgrade activities and maintenance. Separate construction environmental controls will be detailed in the Dredge and Placement Management Plan (Chapter C2), Vessel Traffic Management Plan (Chapter C3) and Maritime Operations Management Plan (Chapter C4).

C1.2.1 CEMP

Whilst this document has been prepared for EIS purposes, a more detailed and specific CEMP is to be prepared by the Appointed Construction Contractor(s). The CEMP will be regularly reviewed and updated during construction either on a monthly basis, or when there is an incident or a change in scope.

The works addressed by this CEMP are:

- Structural upgrade of the existing cruise shipping wharves 1-5 to accommodate larger and heavier cruise ships
- Upgrade of ship services to the cruise shipping wharves, including Intermediate Fuel Oil (IFO), potable water and fire-fighting services, as detailed in **Chapter A4, Project Description**.

C1.2.2 OEMP

An Operational Environmental Management Plan (OEMP) will also be prepared by the Operator, Ports North, which will be regularly updated.

The OEMP will address the operation and maintenance of services provided to Cruise Ships (i.e. water, fire-fighting services and IFO) and the wharf. Ports North's existing Environmental Management System will be reviewed and updated to address any additional environmental management requirements outlined in this document.

C1.3 Legislation

All parties are required to undertake their work in accordance with all relevant Acts, Policies and Regulations. These include, but are not limited to the following.

C1.3.1 Federal Legislation

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).*
- *Great Barrier Reef Marine Park Act 1975 (GBRMP Act)*
- *Native Title Act 1993*

C1.3.2 State Legislation

- *Environmental Protection Act 1994 (EP Act)*
- *Coastal Protection and Management Act 1995 (Coastal Act)*
- *Fisheries Act 1994*
- *Land Act 1994*
- *Marine Parks Act 2004*
- *Nature Conservation Act 1992 (NC Act)*
- *Queensland Heritage Act 1992*
- *State Development and Public Works Organisation Act 1971 (SDPWO Act)*
- *Transport Infrastructure Act 1994 (TI Act)*
- *Transport Operations (Marine Pollution) Act 1995*
- *Transport Operations (Marine Safety) Act 1994*
- *Vegetation Management Act 1999 (VM Act)*
- *Waste Reduction and Recycling Act 2011*
- *Water Act 2000*
- *Work Health and Safety Act 2011*

C1.3.3 Client Documents

- Contractual documentation
- Contractor CEMS

C1.3.4 Other

- Ports North Environmental Policy
- Ports North Environmental Management System (EMS)

All relevant approvals and licenses must be obtained prior to the commencement of any construction works.

C1.4 Ports North Environmental Management

Ports North frequently carries out construction and maintenance works at the Port of Cairns, as well as operating the existing Cairns Cruise Liner Terminal and wharf. The following sections outline their existing environmental management regime.

C1.4.1 Environmental Policy

The Ports North Environmental Policy has the following commitments to demonstrate environmental leadership:

- Implement and maintain an environmental management system to meet the standard set by AS/NZ ISO14001;2204, 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
- All construction contractors should be familiar with this policy and actively promote achievement of these commitments in consultation with Ports North.

C1.4.2 Environmental Management System

Ports North maintains an Environmental Management System (EMS) that is consistent with international standard ISO14001: 2204. This EMS identifies all risks including safety, business and environment as well as management controls or actions to prevent or minimise impacts. A register of risks and treatment plans is maintained for all significant risks. A key element of the EMS is the commitment to conducting environmental audits of all construction activities so that risks associated with these are identified so that Ports North can verify relevant permits, licences and project objectives are being achieved.

The Construction Contractor (s) will be provided with a copy of the EMS and expected to adhere to any relevant treatment plans.

C1.4.3 Incident Management

Ports North have a system in place for recording, reporting and investigating incidents that result in, or have the potential to result in, adverse environmental impacts. This ensures that all environmental incidents and near miss events are investigated in an effective and timely manner to ensure the cause is identified and corrective actions completed.

All Construction Contractors will have an obligation to report events that have or may cause environmental harm.

C1.4.4 Environmental Monitoring

Ports North undertake monitoring to manage potential impacts of the Port of Cairns. These include monitoring of water quality, biosecurity, land contamination and marine habitats.

The Construction Contractor (s) may be required to assist with, or contribute information to, these monitoring programmes where relevant.

C1.5 Action Program

C1.5.1 Training

The Appointed Construction Contractor (s) or operational providers are to provide training for the site workforce on environmental management requirements as part of the site specific induction. Training is to be provided prior to construction and for any staff, including contract staff and sub-consultants, who may be employed at any stage throughout the duration of the construction period. The induction should inform workers of the content and requirements of the site-specific CEMP. All personnel directly involved in environmental management must be appropriately experienced to undertake their relevant tasks.

C1.5.2 Complaints Procedure

Ports North existing complaints procedure will be reviewed to ensure it is adequate to address any issues that may arise as a result of the project.

C1.5.3 Roles and responsibilities

All parties are required to undertake their work in accordance with all relevant Acts, Policies and Regulations.

Table C1.5.3a outlines the roles and responsibilities for each Party taking part in management of the Project.

Table C1.5.3a Roles and Responsibilities

Role	Responsibility
The Proponent (Ports North)	Minimise the potential environmental impacts associated with the Project Address issues raised by the community. Ensure that the Contractor/Operator has appropriate environmental controls and systems in place. Ensure this EMP is regularly reviewed and updated.
Appointed Contractor (s)	Ensure all necessary environmental approvals are secured prior to commencement of work. Plans work in a way that avoids or minimises the impact on the environment Ensure all site personnel, including sub-contractors, are aware of their environmental responsibilities. Conduct activities in accordance with this EMP. Ensure regular audits are undertaken. Ensure all necessary environmental management procedures are in place. Ensure environmental risks are identified and appropriate measures are put in place. Respond to any complaints received. Monitor EMP compliance regularly and update if required. Notify any legislative breaches or environmental incidents to authorities.
Operator (Ports North)	Conduct activities in accordance with the requirements of this plan. Ensure environmental inspections/audits are carried out regularly to ensure compliance with this EMP and relevant legislative requirements. Notify any legislative breaches or environmental incidents to authorities. Undertake environmental management actions as directed by regulatory agencies and/or council.

C1.5.4 Auditing

Ports North will ensure that regular internal and external third party audits are undertaken for the duration of construction activities. Once construction activities cease, audits will be undertaken as per their normal operating procedures.

C1.6 EMP Elements

The EIS has identified the following environmental values as being the key risks for factors which require consideration in this CEMP and OEMP.

- Earthworks and erosion and sediment control
- Terrestrial fauna
- Terrestrial flora
- Water Quality
- Noise and vibration
- Air quality
- Visual amenity and lighting
- Waste management
- Cultural heritage
- Transport
- Greenhouse Gases

For each value identified, an environmental management strategy and actions have been developed to address potential risks that may arise. Each value has a stated environmental objective, performance criteria, management actions, monitoring, reporting and corrective actions. The structure used for the strategy and actions, as recommended in the ToR, is outlined in **Table C1.6a** below.

Table C1.6a Environmental Management Strategy for each Element

Element	Description
Element	Aspect of construction or operation to be managed (as it affects environmental values).
Objective	The operational policy or management objectives that applies to the element.
Performance Criteria	Measurable performance criteria (outcomes) for each element of the operation.
Implementation Strategy	The strategies, tasks or action program (to nominated operational design standards) that would be implemented to achieve the performance criteria and also include the implementation agency for each element of the EMP.
Monitoring	The monitoring requirements to measure actual performance (for example, specified limits to pre-selected indicators of change).
Reporting	Format, timing and responsibility for reporting and auditing of monitoring results.
Corrective Action	The action (options) to be implemented in case a performance requirement is not reached and the person(s) responsible for action (including staff authority and responsibility management structure).
Responsibility	The person(s) responsible for action.
Timing	When certain actions should be undertaken.

C1.7 Environmental Strategies and Management Plans

C1.7.1 Surface and Groundwater

Potential works which may result in erosion include soil disturbance and uncontrolled drainage leading to sediment runoff and concentrated flows. There are little earthworks to be undertaken as part of the construction works, therefore controls required are minimal. Management of these impacts is to be undertaken by implementing erosion and sediment control measures as outlined below. All structures are to be designed and installed in accordance with the International Erosion Control Association of Australia (IECA)'s guidelines. These structures are to be inspected and maintained to ensure they are effective and remain stable, and that sediment build-up is removed when approaching 75 percent capacity to ensure maximum functionality.

Objective	To avoid sediment and other contaminant transfer to receiving waters (i.e. Trinity Inlet).
Potential Impacts	• Release of water polluting substances (e.g. oil, fuel, litter, sediment, chemicals etc.) • Release of acidic runoff to drainage channels from disturbance of soil during the installation of services • Reduction in the water quality (surface or groundwater) of the project area.
Performance Requirement	• No change in the quality of surface water discharged from site and groundwater quality
Monitoring & Reporting	Water leaving the construction sites shall be visually monitored and corrective measures implemented to avoid contaminants entering the marine environment. Regular inspections (visual or other as required) of infrastructure for potential leaks in accordance with Ports North's management procedures and/or as required by relevant standards. To further reduce the potential future risk to marine water quality from refueling activities associated with the provision of IFO at the port, additional mitigation proposed includes revision of fuel handling and spill response procedures in the Port's operational procedures. Reporting in accordance with Ports North's EMS and Incident Procedures.

Management Action	Responsibility	Timing	Corrective Action
Construction Phase			
An ASS management plan will be developed for potential ASS.	Contractors	Prior to construction	Review ASS identification and testing procedures prior to construction and treatment in accordance with current guidelines for the management of acid sulphate soils in Queensland. Disturbance of acid sulphate soils will require treatment with an alkaline material such as lime to neutralise the soil.
A detailed Erosion and Sediment Control Plan (ESCP) will be developed for each of the separate construction stages of the project.	Contractors	Prior to construction	If site inspection identifies the need for repair, cleaning or restoration of control devices, corrective actions that may be undertaken includes: • Replacement/repair of existing controls; • Implementation of new/additional controls • Undertaking remedial action to minimise damage caused by material and/or debris should it leave the site.
Perimeter bunds (i.e. silt fences/sand bags) will be constructed as early works around service installations to contain stormwater runoff within the site during the site clearing and preparation.	Contractors	Prior to and during construction	
Appointed contractors to be aware of forecast rain events and appropriate planning for storm events will be considered.	Contractors	During construction	
Erosion and sediment control measures (including sediment traps, sediment fences and sandbags) shall only be removed when all exposed earth is stabilised.	Contractors	Prior to, during and following construction	
Stockpiles shall not be located in stormwater paths. If this is not possible, install catch drains or earth bunds upstream to divert stormwater around them.	Contractors	During construction	
Cover all materials and debris stockpiles prior to site removal for disposal.	Contractors	During construction	

A formalised stable entry/exit point will be established on the site and suitable controls established to ensure the transport of sediment and materials off the site is minimised.	Contractors	Prior to and during construction	
Contractors will be trained in the correct procedures for handling, transporting and using potentially contaminating substances including diesel, petrol, oils, greases, cement, construction chemicals etc.	Contractors	During construction	
Development and maintenance of an up to-date hazardous materials register on site.	Contractors	During construction	
Provision of designated storage areas for potential pollutants, which are appropriately sealed and bunded.	Contractors	During construction	
Construction of storage areas to relevant Australian Standards to prevent contamination and infiltration by stormwater.	Contractors	During construction	
Spill Kits and other spill containment materials will be stored on site and construction staff trained in their correct use.	Contractors	During construction	
Significant earthworks to be avoided during wet weather.	Contractors	During construction	
Operations			
Regular inspections of the wharf area to identify exposed areas and affected stormwater runoff.	Ports North	Operations	Non-conformances reported immediately to the superintendent and appropriate corrective action shall be undertaken in a prompt manner
Spill Kits and other spill containment materials will be stored on site and staff trained in their correct use.	Ports North	Operations	
Staff will be trained in emergency response procedures in the event of a spill occurring	Ports North	Operations	
Substances that may be contaminating (i.e. paints, solvents, oils etc.) will be sealed and stored in bunded containers	Ports North	Operations	

C1.7.2 Terrestrial Ecology

Objective	To minimise loss, disturbance or damage to fauna and their habitat during construction and operations
Potential Impacts	• Injury/mortality to fauna resulting from construction and operational vehicle movements • Accidental clearing of vegetation to be retained • Spread of weeds by movements to and from site
Performance Requirement	• Clearing restricted to areas required for construction • No new pest plants (including non-declared exotic species) established
Monitoring & Reporting	• Maintain records of clearing dates, areas and volumes of material, and types of cleared vegetation (if any) • Regular checking of vegetation protection measures

Management Action	Responsibility	Timing	Corrective Action
Construction			
Clear demarcation of vegetation to be retained, including erection of fencing and signage where necessary to clearly identify the location of significant areas. Tree protection procedures should be in accordance with AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties	Contractors	Prior to and during construction	Review and modify procedures if an area is accidentally cleared. Rehabilitate disturbed area immediately
Cleared native vegetation is to be salvaged and disposed of at a green waste transfer station to be mulched and/or composted.	Contractors	During construction	
Pre-clearing survey to identify and clearly mark all declared pest plants. Declared pest plants are to be treated and removed separately from native vegetation waste.	Contractors	Prior to and during construction	

Management Action	Responsibility	Timing	Corrective Action
Preparation and implementation of a Weed Management Plan specifically addressing declared pest plants.	Contractors	Prior to and during construction	
Personnel to be introduced to pest species in project area.	Contractors	Prior to and during construction	
Procedures on the handling and reporting of injured fauna to be implemented.	Contractors	Prior to and during construction	
Operations			
Regular inspections of site for damage to vegetation or injured fauna.			Review and modify operational procedures if there is a breach.

C1.7.3 Noise and Vibration

Objective	To minimise impacts from noise and vibration generated by the works and associated activities.
Potential Impacts	• Complaints from sensitive receivers related to noise and vibration events during the construction and operation phase. • Noise and vibration levels exceeding Queensland standards or appropriate noise guidelines at sensitive receivers. • Damage to heritage-listed structures from vibration i.e. Cairns Wharf.
Performance Requirement	• To minimise exceedences of noise goals through the implementation of all reasonable and feasible measures. • Comply with AS 2436-2010 - Guide to noise and vibration control on construction, maintenance and demolition sites. • Follow principles of Best Management Practice (BMP) and Best Available Technology Economically Achievable (BATEA).
Monitoring & Reporting	• Regular recording and monitoring of noise complaints • Information will be recorded on Ports North database to identify events and areas where noise creates adverse effects.

Management Action	**Responsibility**	**Timing**	**Corrective Action**
Construction			
A communications register is to be established for recording incoming complaints	Contractor	During construction	If complaints about noise are received, the offending construction activity should cease until the issue is resolved satisfactorily.
Piling • A resilient pad (dolly) to be used between the pile and hammer head in order to reduce airborne noise impacts. • Vibration criteria to be set for piling activities to avoid damage to the heritage-listed wharf. • Limit piling activities to daytime only. • If night time works are required, community consultation with residents should occur to explore the following	Contractor	During construction	

Management Action	Responsibility	Timing	Corrective Action
options: – Noise monitoring of piling works – Respite periods – Temporary alternative accommodation if night works occur over an extended period • Observation zone to be instigated during piling works to spot for marine fauna within the vicinity of piling • Piling 'soft start' procedures to be implemented			
Equipment • Vehicles and machinery are to be regularly maintained and muffling devices checked to minimise noise levels. • When selecting construction techniques and equipment/machinery, give consideration to minimising noise disturbance. • Intermittently used machines are to be shut down or throttled down in intervening periods.	Contractor	During construction	
Hours of Operation • Works to be limited to 6:30 am to 6:30 pm Monday to Saturday for land-based works; except for specific identified activities for which approval from the DEHP/local authority is obtained. • Potentially affected residents to be notified of any out-of-hours construction works.	Contractor	During Construction	

Operations			
Where possible, avoiding running the ships primary propulsion engines at night (between 10:00pm – 6:00am)	Ports North/Cruise Ship operators	During Operations	If complaints are received, the issue shall be investigated and corrective measures taken such as additional monitoring, change in operational procedures.
Where possible, avoiding conducting loading/unloading activities or refuelling at night	Ports North/Cruise Ship operators	During Operations	
Where possible, avoiding the use of the ships external PA system at night.	Ports North/Cruise Ship operators	During Operations	
Residents to be notified of ship visits (e.g. via Ports North Website)	Ports North/Cruise Ship operators	During Operations	
Complaint notification procedures to be put in place	Ports North/Cruise Ship operators	During Operations	

C1.7.4 Air Quality

Objective	To minimise and manage potential air quality impacts, including dust and vehicle, cruise ship, equipment and machinery exhaust emissions.
Potential Impacts	• Decrease in local air quality from emissions or dust. • Disruption to sensitive receptors, in particular residences in close proximity to the project area.
Performance Requirement	• No visible dust plumes from site. • No complaints from the neighbouring residents or other sensitive receptors • Compliance with the Environmental Protection (Air) Policy 1997
Monitoring & Reporting	Visual monitoring and observation of weather conditions to determine need for dust generation management procedures.

Management Action	Responsibility	Timing	Corrective Action
Construction			
Sensitive receptors to be informed of upcoming construction activities and hours of work.	Contractors	Prior to potential dust-generating activities	Review and modify procedures if adverse impacts are observed or complaints received. In the event of any spillage or tracking, the spilt material will be removed within 24 hours
Regular watering of exposed areas.	Contractors	During Construction	
Minimise the exposed surface of stockpiles including partial enclosure where practical.	Contractors	During Construction	
Additional watering during adverse weather conditions such as high winds and dry periods. management measures are not adequate upon visual inspection	Contractors	During Construction	
Training will be provided to all project personnel, including relevant sub-contractors on sound air quality control practices and the requirements from this plan through inductions, toolboxes and targeted training.	Contractors	Prior to Construction	
Construction equipment would be properly maintained to ensure exhaust emissions are minimised where practicable and comply with the *Environmental Protection Act 1994*.	Contractors	During Construction	

Management Action	Responsibility	Timing	Corrective Action
Operations			
Ports North existing EMS to be updated to reflect changes in ship visits	Ports North	Prior to commencement of new operations	If monitoring identifies an exceedance of air quality objectives, corrective measures will be explored in consultation with Cruise Ship operators e.g. upgrades to equipment, changes in hours of operation etc.
Ports North to work with Cruise Ship operators to identify opportunities to reduce air emissions including: • Regular maintenance and engine tuning • Increased use of catalytic converters (which can reduce marine emissions by over 90%) • Reduced idling time at berth with main engines turned on as late as possible before departure and turned off as soon as possible after berthing • Investigate future opportunities to control cruise ship emissions through the provision of shore power as this technology becomes more prevalent in newer ships, allowing cruise ships to 'power down' engines during time in port.	Ports North	During operations	
Appropriate safety measures are to be installed and maintained to ensure vapours from fuel storage and refuelling meet standards.	Ports North	During operations	

C1.7.5 Visual Amenity and Lighting

Objective	To minimise the impact of construction activities and operations on the landscape character and visual environment.
Potential Impacts	• Local scenic amenity could be adversely affected
Performance Requirement	• Minimal impact on local amenity during construction • Minimise impact on local amenity from berthed cruise ships
Monitoring & Reporting	Maintain records of complaints received and take corrective action if necessary.

Management Action	Responsibility	Timing	Corrective Action
Construction			
Where feasible the elements within construction sites would be located to minimise visual impacts e.g. materials and machinery would be stored back behind fencing.	Contractors	During Construction	Review and relocated elements if adverse visual impacts are observed or comments received.
Lighting of compounds and works sites would be restricted to agreed hours, particularly piling activities which are to be restricted to daylight hours	Contractors	During Construction	Review and modify lighting management practices if any adverse impacts are observed or complaints received.
Cut off and directed lighting would be used at wharf construction sites sould night time construction occur to ensure glare and light spill is minimised.	Contractors	During Construction	
Preparation of a Light Management Plan for construction and operational activities	Contractors	Prior to and during Construction	

Management Action	Responsibility	Timing	Corrective Action
Construction			
Regular maintenance of site perimeter fencing would be undertaken, including the prompt removal of graffiti.	Contractors	During Construction	Review and address issues if adverse visual impacts are observed or comments received.
On completion of construction, work sites and other land occupied temporarily would be reinstated	Contractors	Following Construction	Disturbed area to be reinstated as soon as practical after construction completion.
Operations			
Ports North to work with Cruise ship operators to minimise night lighting while ships are berthed overnight.	Ports North	Operations	Review and address issues if complaints received.
Site to be kept tidy and clear of waste	Ports North	Operations	

C1.7.6 Waste Management

Objective	To manage waste during construction and operation of the Project in accordance with legislative requirements and to maintain the amenity and environmental values of the area
Potential Impacts	• Incorrect handling may result in introduction of wastes into surrounding area including marine areas. • Waste materials may encourage pests. • Potential impacts on human and environmental health from exposure to hazardous waste materials.
Performance Requirement	• No public complaints • A significant portion of waste is reused or recycled • The volume of waste produced during construction is minimised • All hazardous substances disposed at a licensed facility
Monitoring & Reporting	• Quantities of waste recycled/reused and disposed off-site will be regularly monitored and recorded • Regular visual inspections of waste management procedures

Management Action	Responsibility	Timing	Corrective Action
Construction			
Recyclable waste streams e.g. concrete, metals are to be separated and sent to appropriate recycling facility. **Hazardous goods** • Specific waste bins and bunding will be used to isolate waste liquids, chemicals and hazardous wastes • Minimal quantities will be kept on site • Empty drums and other storage containers will be stored sealed and in bunded areas • An inventory of safety data sheets for hazards substances will be maintained	Contractors	During construction	Review waste management practices and adjust as required.

Management Action	Responsibility	Timing	Corrective Action
Construction			
• Licenced contractors will be engaged to regularly remove waste to the appropriate facility • Spill kits will be available close to areas where chemicals are being used or kept. **Sewage** • Existing facilities that have connections to the reticulated waste water system will be used in preference of temporary and mobile ablution faculties • The minimal number of temporary and mobile ablution facilities will be used on site. **Office and General Waste** • Recyclables will be sorted, stockpiled or contained in the appropriate recycling bins • Licenced contractors will be engaged to regularly remove waste bins to the appropriate facility • Waste areas will be kept tidy and all waste is to be placed in the appropriate receptacles • Staff will be inducted on waste management • Waste will be collected in sealed bins to reduce attracting pest fauna			
Operations			
Recycling receptacles will be provided	Ports North	Operations	Review waste management practices and adjust as required.
Licenced contractors will be engaged to regularly remove waste bins to the appropriate facility	Ports North	Operations	
Public areas will be kept tidy	Ports North	Operations	

C1.7.7 Cultural Heritage (Indigenous and Non-Indigenous)

Objective	To prevent damage or loss to cultural heritage items that may occur on the site.
Potential Impacts	Damage or disturbance to significant cultural heritage values or artefacts.
Performance Requirement	• No damage or disturbance to archaeological material of cultural heritage significance. • Cultural heritage values of the place are appropriately recognised and managed. • Adhere to the *Aboriginal Cultural Heritage Act 2003* Duty of Care Guidelines and the *QLD Heritage Act 1992.*
Monitoring & Reporting	In accordance with relevant Cultural Heritage Management Plan.

Management Action	Responsibility	Timing	Corrective Action
Construction			
Pre-construction: Heritage advice on proposed detail design of any works proposed within a heritage listed place (ie wharf). Pre and post-construction check of wharf condition to be undertaken with reference to the exiting condition survey report.	Construction Contractors	Pre and post construction	Reparation of damage, in consultation with approval authorities
A suitably qualified heritage specialist to prepare cultural heritage induction material. All personnel and contractors to undertake this induction prior to works.	Ports North Construction Contractors	Prior to and during construction	As per induction material.
If any previously unidentified potential Aboriginal or non-Aboriginal cultural heritage is found, all works are to cease pending an inspection by heritage representative. Ports North will establish a minimum of a 10m buffer zone around the outer extent of the find and all project activities will cease within this buffer zone.	Construction Contractors	During construction	Follow advice provided by heritage representative.
Hammer energy used to undertake piling will be controlled to limit vibration impacts to Queensland Heritage Register wharves.	Construction Contractors	During construction	Monitoring and adjusting where necessary.
Operations			
Regular monitoring of wharf condition, as per current Port North operating procedures	Ports North	Periodically ongoing	Reparation of damage in consultation with approving authorities

C1.7.8 Transport

Objective	• To minimise impacts on traffic during the construction and operational activities associated with the project. • To provide a safe working and travelling environment during construction and operation
Potential Impacts	• Disruption of traffic during construction or when cruise ships are berthed • Safety of road users is reduced
Performance Requirement	• No or minor traffic delays as a result of construction or operational activities • No accidents as a result of construction or operational activities
Monitoring & Reporting	• Visual surveillance by site staff to ensure performance criteria are being met • Any non-compliance with the Traffic Management Plan will reported to the Construction Manager

Management Action	Responsibility	Timing	Corrective Action
Construction			
The Contractor will be required to develop a Traffic Management Plan for construction	Construction Contractor (in consultation with Ports North and relevant transportation authority e.g QR/TMR)	Prior to construction commencing	In the event that monitoring identifies practices inconsistent with the Traffic Management Plan, the Project Construction/Operations manager will seek alternative solutions, and may stop work while issues are rectified.
Site traffic will use designated routes within the Project area to avoid interaction with the public	Construction Contractor	During Construction	
Safety barriers, appropriate signage and traffic control will be used during construction.	Construction Contractor	During Construction	
Operations			
Operations Traffic Management Plan to be developed for bus and taxi areas whilst cruise ships are docked.	Ports North	Prior to operations commencing	

C1.7.9 Climate Change and Greenhouse Gases

The majority of greenhouse gas emissions from the construction phase of the project are generated from dredging activities and its fuel use. The best way to minimise fuel use is to utilise newer, more fuel-efficient dredging machinery. Smaller savings can be made through optimising dredging timeframes and travel, and undertaking regular maintenance and inspections to ensure machinery is operating at its highest efficiency

Objective	• Minimise the amount of GHG emissions produced • Cruise shipping operations are managed to minimise disruption from a changing climate.
Potential Impacts	• Excessive amounts of greenhouse gas emissions produced during construction • Damage to infrastructure or disruption of cruise shipping activities
Performance Requirement	• Reduction in calculable greenhouse gas emissions through implementation of planning, design and management actions. • Potential climate change risks to the Project are identified and managed.
Monitoring & Reporting	• Monitor key performance indicators to track construction greenhouse gas emissions, detect trends early and implement measures to address any unforseen increases in emissions. • Monitor latest available climate change projections and data

Management Action	Responsibility	Timing	Corrective Action
Construction			
Select or prefer more fuel efficient vehicles and plant that are fit-for-purpose, and identify opportunities to use less carbon intensive where available.	Contractors	Prior to and during construction	Review practices and adjust as required.
Regularly inspect and maintain equipment to ensure optimal energy or fuel efficiency.	Contractors	During construction	
Operations			
Review existing emergency response plan, and incorporate measures to manage additional risks associated with climate change.	Ports North	Prior to operations commencing	
Regular inspections of wharf infrastructure to detect deterioration and/or damage as per current operating procedures, particularly after extreme weather events.	Ports North	Prior to operations commencing	