Construction Environmental Management Plan for the Northern Land Expansion Project – Southern Reclamation Area

Brief description

This Construction Environmental Management Plan (**CEMP)** has been developed to document Gladstone Ports Corporation Limited's (**GPC**) systems and controls for minimising the risk of environmental impacts associated with the construction of the Northern Land Expansion Project Southern Reclamation Area (**NLEP SRA**) outer bund wall, which forms part of the Gatcombe and Golding Cutting Channel Duplication Project in the Port of Gladstone. This document addresses approval conditions of **EPBC 2012/6558, DA2022/10/01 and PA-EA-100261837**. This document also aligns with GPC's Safety Health and Environment Policy (#1930957) and has been reviewed by independent Third Party reviewer Dr Paul Erftemeijer.

EPBC Act controlled action approval information	
EPBC number	2012/6558
Project name	Port of Gladstone Gatcombe and Golding Cutting Channel Duplication Project, Gladstone, Queensland
Proponent/approval holder and ABN	Gladstone Ports Corporation Limited (ABN 96 263 788 242)
Proposed/approved action	To duplicate the existing Gatcombe and Golding Cutting shipping channel, disposal of capital dredge spoil to land reclamation, and upgrade associated infrastructure in the Port of Gladstone, Queensland.
Location of the action	Port of Gladstone

Document information	
Current version	7
First released	28/04/2022
Approved by DCCEEW	21/03/2025
Last updated	18/05/2026
Review frequency	Annual
Review before	Completion of one (1) year from the date of approval
Audience	GPC Operational team, contractors, and regulatory bodies

Document accountability	
Role	**Position**
Owner	Group Executive Terminal Operations
Custodian	Earthworks Superintendent

Declaration of accuracy

In making this declaration, I am aware that Section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed 
Dean O'Dowd (17/06/2026 08:58:43 GMT+10)

Full name (please print): DEAN O' DOWD

Position- (Acting) Group Executive Terminal Operations

Organisation (please print)- GLADSTONE PORTS CORPORATION

Date 17/06/2026

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1 Terms and definitions

AQMP	Air Quality Management Plan
ASS	acid sulfate soil
ASSMP	Acid Sulfate Soil Management Plan
Biosecurity Act	*Biosecurity Act 2014* (Qld)
BoM	Bureau of Meteorology
BRP	Bushfire Management Plan
CEMP	Environmental Management Plan
CEO	Chief Executive Officer
CG	Coordinator-General
CSEP	Communications and Stakeholder Engagement Plan
Cth	Commonwealth
DA	development approval
DAF	Department of Agriculture and Fisheries
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DETSI	Department of Environment, Tourism, Science and Innovation (previously known as DES)
DPI	Department of Primary Industries previously known as DAF
EA	Environmental Authority
EIS	Environmental Impact Statement
EMS	Environmental Management System
EP Act	*Environmental Protection Act 1994* (Qld)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
ERA	environmentally-relevant activity
ESCP	Erosion and Sediment Control Plan
FSMP	Fine Sediment Monitoring Plan
GBRWHA	Great Barrier Reef World Heritage Area
GGCCDP	Gatcombe and Golding Cutting Chanel Duplication Project
GPC	Gladstone Ports Corporation Limited
HAT	highest astronomical tide
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ILUA	Indigenous Land Use Agreement
km	kilometres
LAT	lowest astronomical tide
m	metres
m^3	cubic metre
MEP	Marine Execution Plan

MHWN	mean high water neap
MSES	matters of state environmental significance
MSQ	Maritime Safety Queensland
NAGD	National Assessment Guidelines for Dredging
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measures
NGER Act	*National Greenhouse and Energy Reporting Act 2007* (Cth)
NLEP	Northern Land Expansion Project
OUV	outstanding universal value
PASS	potential acid sulfate soils
PCCC	Port Curtis Coral Coast
pHx	pH of soil and deionised water
pHox	field oxidised pH which is pH of soil and hydrogen peroxide
Qld	Queensland
QPWS	Queensland Parks and Wildlife Service
REMP	Receiving Environment Monitoring Plan
SDPWO Act	*State Development and Public Works Organisation Act 1971* (Qld)
SARA	State Assessment and Referral Agency
SIMP	Social Impact Management Plan
SIMR	Social Impact Management Report
SRA	Southern Reclamation Area
TARP	Trigger Action Response Plan
TMP	Traffic Management Plan
WBE	Western Basin Expansion
WBRA	Western Basin Reclamation Area
WQO	water quality objectives

2 Introduction

In July 2020, GPC received approval from the Coordinator-General (CG) for the Gatcombe and Golding Cutting Channel Duplication Project's (GGCCDP) Environmental Impact Statement (EIS).

The approval included Capital dredging of 12.6 million cubic metres (m^3) of seabed material to deepen and widen the existing Gatcombe and Golding Cutting shipping channels to a final design depth of approximately 16.1 metres (m) below Lowest Astronomical Tide (LAT) and width of 200m. The dredged material was proposed to be beneficially reused by placing it within three (3) reclamation areas. A small amount of material would be placed within the existing Western Basin Reclamation Area (WBRA), with most material to be placed within two (2) new Western Basin Expansion (WBE) reclamation areas (northern and southern). These two (2) new reclamation areas would total 276 hectares (ha), which could be used for future port infrastructure, including wharves to support increased port throughput. The new WBE reclamation areas are proposed to be located immediately adjacent to, and to the west of, the existing WBRA.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval for this project was received at the end of 2020. Key stages of the GGCCDP as approved under the EPBC Act are:

- Project Stage 1: construction of the WBE Southern Reclamation Area – also known as Northern Land Expansion Project Southern Reclamation Area (NLEP SRA or Project) and the barge unloading facility
- Project Stage 2: the first campaign of capital dredging (to a depth of -13.5m LAT)
- Project Stage 3: construction of the WBE (North)
- Project Stage 4: Stage 2 capital dredging, the second campaign of capital dredging (to a depth of -16.1m LAT).

In June 2023, GPC received the Development Approval under the *Planning Act 2016*.

This Construction Environment Management Plan (CEMP) has been prepared for the construction of the NLEP SRA only (a portion of Project Stage 1), and addresses legislative obligations and best practice management measures to be implemented during the Project activities. The construction of the barge unloading facility and the barge access channel have not been considered in this management plan. A separate CEMP for these activities will be prepared and submitted for approval prior to commencement of the relevant activities.

3 Project description

The NLEP SRA will comprise a new reclamation area, 111.12ha in size, located to the west of the existing WBRA. The NLEP SRA (Figure 1) will utilise the existing WBRA outer bund walls as its eastern and southern extents, maximising the capacity to hold dredged material whilst minimising the permanent disturbance footprint.

Figure 1: Footprint of the proposed NLEP SRA

3.1 Construction activities

The construction activities for the establishment of the NLEP SRA, include:

- Handling of stockpiled reclamation bund wall material
- Placement of core and armour material, and geotextile fabric
- Temporary removal of approximately 450m^2 (30m X 15m) of existing WBRA bund wall to LAT to serve as fish passage
- Reinstatement of the bund wall following safe fauna salvage operations.

3.1.1 Bund wall construction

Bund construction methodology for the NLEP SRA will involve the following construction works:

- Placement of core material
- Placement of armour material
- Topping off
- Placement of geotextile including placement of a rock reshaping berm layer on top of the geotextile.

The bund wall design and construction implementation has addressed the relevant findings and recommendations of the Gladstone Bund Wall Independent Review.

GPC will focus on reducing fuel consumption and the generation of emissions during the construction of the bund wall by implementing the following measures:

- Selection of fuel-efficient machinery and vehicles, where possible, matched to the delivery requirements of quarry materials to the reclamation site
- Appropriate equipment maintenance, and
- Optimisation of transport of materials through load optimisation and delivery scheduling.

3.1.2 Placement of core material

Core material for the WBE reclamation area will be placed directly over the existing sediments by:

- End tipping material onto the bund, with the material being pushed over the face and/or mechanically placed by a bulldozer, excavator or end loader
- Bund material will then be shaped by bulldozer, grader or excavator depending on location and required bund profile.

The specification and selection of the core material will include a range of material gradings, as finer/smaller rock and earth material diameter sizes will assist in reducing the likelihood of piping through the reclamation bund walls during the dredged material dewatering process within the reclamation area. The core material for the seaward and intertidal locations will sink through the soft silt bed to settle on the stiff clays underneath. In the process of settling through the soft bed, the silt material has the potential to:

- Become embodied in the matrix of the core material
- Push out a mud wave ahead of the bund, and/or
- Push out a mud wave to either side of the bund.

Potential environmental impacts from placing rock material on the seabed and intertidal areas will be minimised by implementing the mitigation measures detailed in the Acid Sulfate Soil Management Plan (ASSMP) and this CEMP.

The placement of core material for the finished seaward bund wall will be to a level 7m above the LAT. The finished crest level will be approximately 7m wide to allow construction vehicles to transport material above the marine water level.

Surveyors will control and guide the progression of the bund wall to the required alignment and levels as it extends out into the water.

The NLEP SRA outer bund wall will be constructed as a rock filled embankment structure. Bund construction will be undertaken by the mechanical placement of material delivered to the site using bulldozers, excavators and other earthmoving equipment. Construction methodology will take into account local conditions identified during the geotechnical investigations.

Works are anticipated to be undertaken from two (2) work fronts, with these work fronts commencing at each of the tie-ins with the existing WBRA (being the south-western and north-eastern corners) allowing bund construction to progress in a north and westerly direction where the two (2) fronts will ultimately join. Progression of bund construction from two (2) work fronts is preferred over a single work front as it:

- Enables potential efficiencies to be gained in the construction schedule
- Allows impacts of compaction and wear and tear associated with construction traffic accessing and travelling along the bund to be distributed rather than concentrated at one (1) location
- Improves site safety associated with having multiple access points and fewer vehicle interactions at each front.

The majority of bund construction works are anticipated to be completed from the crest of each progressing bund work front. However temporary works platforms may be required to facilitate construction activities and trafficability. So far as reasonably practicable, these temporary works platforms (if required) will be contained to the reclamation (inner) face of the NLEP SRA outer bund wall to avoid disturbance outside of the permanent NLEP SRA footprint. Any areas or works that fall outside of the permanent NLEP SRA footprint will be reinstated.

Construction of the NLEP SRA outer bund wall will involve the following construction sequence:

- Placement of Type 2 core material including overfill zones to above predominant tidal planes. Type 2 core material shall be worked down to the base of very soft/soft soil. Type 2 fill consists of a rock fill predominantly gravel and cobble size particles with maximum particle size 300mm.
- In paleochannel affected areas, placement of Type 1 core material including overfill zones to provide a suitable working platform for the placement of Type 2 core material. Type 1 core material shall be worked down to the base of the very soft/soft soil. Type 1 material consists of a Rip Rap type rock, maximum particle size 550mm.
- Placement of rock filter material and rip rap material on ocean side of the SRA outer bund wall
- Placement of geotextile material on reclamation side of SRA outer bund wall
- Placement of rock reshaping berm on the reclamation side of SRA outer bund wall to secure the geotextile material
- Placement of wearing course and remainder of rip rap and rock reshaping berm to crest of SRA outer bund wall.

3.1.3 Placement of armour material

To protect the bund core material from wave and storm conditions, armour material will be placed along the seaward exposed face of the core material following behind the core work face. Rock armour at the front of the bund will sink through the soft silt bed, creating a secure foundation for the armour above. Rock armour is tolerant of some movement and settlement. Monitoring of line and level during construction will identify any areas of settlement. Additional rock can then be easily added to maintain the required coverage.

A maximum completed unarmoured length of 50m will be maintained during construction to minimise potential erosion and water quality impacts from tidal flows and wave movements against the unarmoured outer bund walls. Additionally, sufficient armoured material will be held in reserve for placement in the event of a storm or approaching cyclone.

3.1.4 Topping off

After completion of the bund wall placement of core and armour material, the bund will be topped off to bring the bund walls to final design levels.

3.1.5 Geotextile placement

Geotextile material will be placed against the inner face of all of the outer bund walls. The purpose of the geotextile material is to minimise the migration of dredged material fines through the bund wall to the marine waters of Port Curtis.

The geotextile material will be keyed into the rock armour material at its base, and ultimately at the crest of the wall to prevent slippage and deformation from occurring prior to placement of the core material or over the life of the reclamation process. The geotextile material will be laid on the bund wall, so no wrinkles, gaps, folds or deformations can occur in the material. All joints will be sewn to create seams and will conform to the requirements of AS3706 (Geotextiles – Methods of Test). Overlaps in the fabric will be directly vertically down slope of the armour material.

The geotextile material will be non-woven and generally comply with the specification or acceptable equivalent of:

- Weight > 542g/m^2
- Tensile strength > 1,690N
- Trapezoidal tear > 644N
- Puncture resistance > 1,070N
- Permittivity < 0.7sec^{-1}
- Apparent opening size < 0.150mm.

The placement and restraint of the geotextile liner will be specified in the detailed design phase of the reclamation bund wall. The liner will meet industry best practice, recognised industry standards and the relevant findings of the Gladstone Bund Wall Independent Review.

3.2 Potential impacts to listed Outstanding Universal Values

The objective of this CEMP is to conduct the construction of the NLEP SRA bund wall with minimal impact to the Outstanding Universal Value (OUV) of the area noting that the construction footprint is located within the Great Barrier Reef World Heritage Area (GBRWHA).

To identify and describe the local expression of the OUV of the GBRWHA within the priority Port of Gladstone master planned area and its surroundings, a methodology was created during the development of the Master Plan for the priority Port of Gladstone 2018. This methodology is based on the approach outlined in “Method for Identifying the Presence of Outstanding Universal Value within the Great Barrier Reef World Heritage Area" (Adaptive Strategies et al. 2017). Table 1 summarises the locally expressed OUV attributes within the priority Port of Gladstone master planned area and surrounding areas, and their contribution

classifications relative to the overall OUV of the GBRWHA. Table 1 also includes a summary of the environmental values determined to be key contributors to the local expression of the attributes of the OUV of the GBRWHA (i.e. key environmental values).

Hydrodynamic modelling of the increase in turbidity and erosion accretion rates during the construction activity showed that that zone of impact was limited to the immediate vicinity of the construction area. Significant scouring of bed sediment may occur for a short period during the bund closure due to the high velocity of water (2.5m/sec) rushing through the gap in the wall (BMT 2024(a)). Monitoring programs will be in place for monitoring any release of fine sediment and any long-term hydrodynamic changes from the construction activities (BMT 2024(b)).

Based on the impact assessment report, as assessment of the likely impact of the construction activity on the OUV is included in Table 1.

Table 1: Outstanding Universal Value relevant to the Port of Gladstone and likely impact from the NLEP SRA

Category	Local attribute	Relevant OUV criteria and contribution classifications[1]				Summary of key environmental values	Likely Impact from NLEP SRA
		vii[2]	viii[3]	ix[4]	x[5]		
Coral reefs	Fringing reefs	**Min**	**Min**	**Min**	**Min**	Fringing coral reefs	None in the zone of influence of the Project
	Inshore turbid reefs	-	**Min**	**Min**	**Min**	Inshore turbid coral reefs	None in the zone of Influence
	Coral species diversity and extent	**Min**	**Min**	**Min**	**Min**	Various coral species	None in the zone of influence
Marine water quality	Marine water quality	-	-	**Mod**	**Mod**	Marine water quality	Short term within the zone of impact, only for the duration of the construction activity
Fish	Fish species and diversity	**Min**	-	**Min**	**Min**		No declared fish habitat area within the zone of influence Bund closure activities may impact fish movements
Marine megafauna	Dugong	-	-	-	**Mod**	Dugong species Seagrass meadows	Loss of potential dugong habitat restricted to the NLEP SRA footprint (seagrass meadows)
	Species of whales	-	-	-	**Min**	Minke whales Sperm whales Humpback whales	Not present in the zone of influence
	Migrating whales	**Min**	-	-	-	Humpback whales and calving habitat	Not present in the zone of influence
	Species of dolphins	**Min**	-	-	**Sig**	Australian humpback dolphins	Loss of potential dolphin habitats restricted to the NLEP SRA footprint (seagrass meadows)

Category	Local attribute	Relevant OUV criteria and contribution classifications[1]				Summary of key environmental values	Likely Impact from NLEP SRA
		vii[2]	viii[3]	ix[4]	x[5]		
Marine turtles	Breeding colonies of marine turtles	**Mod**	-	-	**Mod**	Flatback turtle rookery on Curtis Island Nesting beaches on Facing, Curtis and Wild Cattle Islands, Boyne Island Beach and Tannum Sands	No breeding colonies are present within the zone of influence of the Project
	Green turtle breeding	**Min**	-	-	**Min**		Not present in the zone of influence
	Marine turtle rookeries	**Mod**	-	-	**Mod**		Not present in the zone of influence
	Nesting turtles	**Min**	-	-	-		Not present in the zone of influence
	Foraging Turtles					The construction site is a foraging habitat for green turtles	Potential of injury from construction activities Potential of entrapment and stranding during bund closure
Seagrass and macroalgae	Seagrass	**Min**	**Min**	**Mod**	**Mod**	Seagrass meadows	Direct loss of seagrass restricted to the NLEP SRA footprint (seagrass meadows) Temporary indirect impact to seagrass meadow adjacent to the zone of influence
	Beds of *Halimeda* algae	-	-	**Min**	-	Beds of *Halimeda* algae	Not in the Project zone of impact or influence
Shorebirds and migratory seabirds	Seabirds	**Min**	-	**Min**	**Min**	Key species observed in the area, that are above the count of 50 during any observation, include: grey teal, Australian gull billed terns, Australian pelicans, silver gulls, little black cormorant, little egret, cattle egret, and little terns.	Loss of potential foraging habitats for seabirds
	Shorebirds and migratory birds	-	-	-	**Sig**	Threatened migratory shorebird species Shorebird habitat and important roost sites (note these vary from year to year). Key species observed in the area, that are above the count of 50 during any observation, include: red-necked stints, eastern curlews, curlew sandpipers, red necked avocet, sharp tailed sand piper, whimbrel, red capped plover, and pied stilt.	Loss of potential foraging habitats for migratory shorebirds

Category	Local attribute	Relevant OUV criteria and contribution classifications[1]				Summary of key environmental values	Likely Impact from NLEP SRA
		vii[2]	viii[3]	ix[4]	x[5]		
Flora, fauna and ecological communities	Threatened and endangered flora and fauna species (including threatened ecological communities)	**Min**	-	-	**Mod**	coastal saltmarsh, threatened ecological community	None present in the Project impact area and the zone of influence
	Vegetated mountains	**Min**	-	-	-	Mount Larcom landform	None present in the Project impact area and the zone of influence
	Mangroves	**Min**	**Min**	**Min**	**Min**	Various mangrove species	None present in the Project direct impact area or the zone of influence No impact is being envisaged on the mangrove communities adjacent to the Project area
	Mangrove species diversity	-	-	-	**Min**	Various mangrove species	None present in the Project direct impact area or the zone of influence No impact is envisaged on the mangrove communities adjacent to the Project area
	Vast mangrove forests	**Mod**	-	-	-	Mangrove sequences at The Narrows	Not applicable to this Project
Continental islands	Continental islands and green vegetated islands	**Mod**	**Mod**	-	-	Curtis Island	Not applicable to this Project
	Plant species diversity and endemism (species being unique to a defined geographic location)	-	-	-	**Sig**	Curtis Island	Not applicable to this Project
	Vegetation of the continental islands	-	-	**Sig**	**Sig**	Curtis Island	Not applicable to this Project
Geomorphology	Beaches	**Min**	-	-	-	Curtis Island beaches Facing Island beaches Boyne Island Beach	Not applicable to this Project
	Dune systems	**Min**	**Min**	-	-	Parabolic dunes Curtis Island	Not applicable to this Project

Category	Local attribute	Relevant OUV criteria and contribution classifications[1]				Summary of key environmental values	Likely Impact from NLEP SRA
		vii[2]	viii[3]	ix[4]	x[5]		
	River deltas	**Min**	**Min**	**Min**	**Min**	Marine tidal sand deltas (Curtis Island, Boyne River, Colosseum Inlet)	Not applicable to this Project
	Connectivity: cross-shelf, longshore and vertical	**-**	**Min**	**Min**	**Min**	The Narrows tidal passage	Not applicable to this Project
Cultural heritage values	Traditional Owner interaction with the natural environment	**-**	**-**	**Mod**	**-**	Indigenous cultural heritage sites and values	Not present in the Project impact area and the zone of influence. However, if any object of cultural significance is located during Project activities, actions will be undertaken in accordance with Section 19.4 of this document.
Marine fauna	Diversity supporting marine fauna species (global conservation significance)	**Min**	**-**	**Min**	**Mod**	A diverse range of marine fauna species	May result in temporary displacement of megafauna from the immediate vicinity of the Project area during construction activities
Total species diversity	Total species diversity	**Mod**	**-**	**Mod**	**Mod**	A diverse range of marine, intertidal and terrestrial flora and fauna species	No impact is envisaged

Table notes:

1 Min = Minor; Mod = Moderate; Sig = Significant
2 vii = Aesthetic values and superlative natural phenomena
3 viii = Ongoing geological processes
4 ix = Ecological and biological processes
5 x = Biodiversity conservation

Reference: Priority Port of Gladstone Master Planning

Additionally, GPC has conducted an environmental risk assessment for the Project as detailed in Section 9 of this plan.

4 Scope

This CEMP satisfies Condition 20 of EPBC approval and Condition 27 of DA2022/10/01. It has been prepared 'generally in accordance' with CEMP V3a (28/04/2022) approved by the State Assessment and Planning Agency (SARA) on 16/06/2023 and specifies performance objectives, actions and procedures to minimise and mitigate potential environmental impacts of construction activities.

This CEMP must be read in conjunction with the following associated documents as listed in Table 2.

Table 2: List of associated documents

Associated Document	Compliance Obligation
Receiving Environment Monitoring Program	State and Commonwealth
Fine Sediment Monitoring Plan	Commonwealth
Acid Sulfate Soil Management Plan	State
Air Quality Management Plan	State
Fauna Salvage Plan	State
Erosion and Sediment Control Plan	State
Traffic Management Plan (TMP)	GPC Planning
Fisherman's Landing Emergency Response Plan	GPC planning
Emergency Response Management Plan	GPC Planning
Environmental Risk Assessment	Supporting documentation

5 Objectives

The objective of the CEMP is to carry out the construction of the NLEP SRA while minimising any impact to Project EPBC Act controlled action approval protected matters and the Port of Gladstone's OUV of the GBRWHA.

This CEMP is intended to be a working management document to be implemented for the Project, to ensure legislative compliance and best practice environmental management. This CEMP aligns with GPC's ISO14001 certified EMS requirements and provides a structured program for the management of the Project activities. This is to ensure that all reasonable and practicable measures will be implemented within an adaptive management framework, to prevent and/or minimise the likelihood of environmental harm being caused during the works.

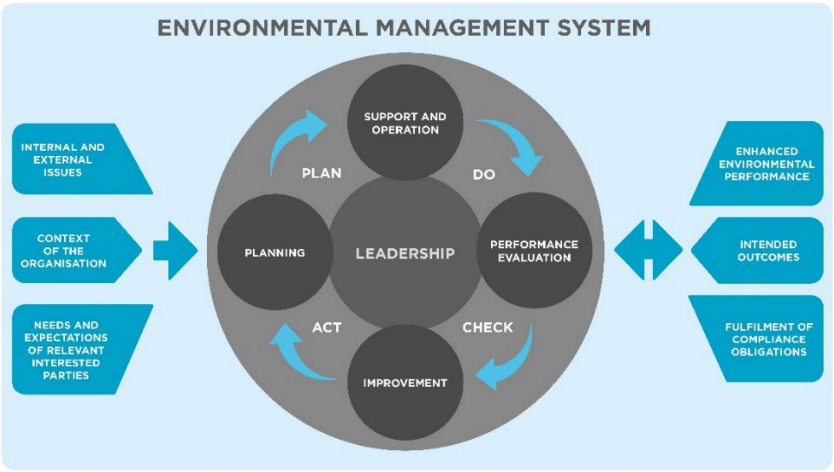

Figure 2: Elements of GPC's EMS Framework

6 Legislative obligations

This CEMP has been developed to support the legal obligations outlined in the regulatory approvals for the Project. A summary of how the CEMP and associated documents address the legal obligations pertaining to the CEMP has been included in Appendix 2. The EIS commitments pertaining to the CEMP have been included in Appendix 3.

The summary of the Project's statutory approvals is presented in Table 3.

Table 3: Summary of the Project statutory approvals

Approval/permit	Legislation	Approval no./date received	Edoc
CG Report	SDPWO Act	Approved on 6 July 2020	1627117
EPBC Act-controlled action approval	EPBC Act	EPBC 2012/6558 approved on 24 December 2020	1673296
Development Permit for: • Material Change of Use for Environmentally Relevant Activity (ERA) 16(1)(d) (dredging) • Operational Works that is Tidal Works within a coastal management district • Operational Works for matters regulated under the *Fisheries Act 1994* (Qld) • Waterway barrier works under the *Fisheries Act 1994*	*Planning Act 2016* (Qld)	DA2022/10/01 and 2205-28989 SRA Dated 16/06/2023	1882455
Environmental Authority (EA) for ERA 16(1)(d) (dredging)	*Environmental Protection Act 1994* (Qld)	PA-EA-100261837 dated 16/06/2023	1882455

The legal obligations for the Project are tracked in the Compliance Register (#1665881).

7 Implementation

Project works should not be undertaken in a way which:

- Contravenes this CEMP (which incorporates the relevant GGCCDP EIS commitments and environmental approval conditions that allow the Project to proceed)
- Is inconsistent with GPC's EMS.

Where there is conflict between this CEMP and documents compiled by an engaged contractor, conditions imposed in this plan will prevail. All relevant staff and contractors will be introduced to and made familiar with the provisions of this CEMP, and with the procedures and processes which will achieve the objectives relevant to this plan.

Following the commencement of works, amendments to this CEMP and associated documents must be communicated to and approved by the Project Manager. All changes to this plan that are not administrative in nature must also be communicated to and approved by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the Department of Environment, Tourism, Science and Innovation (DETSI) prior to the changes

being implemented. The contractor undertaking the work will also be notified of any changes or amendments to the CEMP, which will become a contract condition to them undertaking the works.

The CEMP will be implemented in accordance with relevant environmental approval conditions.

Once approved by DCCEEW, DETSI and the GPC Assessment Manager, the CEMP will be filed in GPC's document management system and published on the GPC website. All relevant Project employees and contractors will be introduced to and made familiar with the provisions of the CEMP, which will achieve the objectives relevant to this plan.

8 Roles and responsibilities

GPC staff and contractors are responsible for the environmental performance of their activities and for complying with this CEMP and the general environmental duty as set out in Section 319 (1) of the *Environmental Protection Act 1994* which states:

"A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to minimise the harm".

GPC will use a combination of in-house earthworks staff and engaged contractors to undertake construction works. The structure of the proposed Project team is provided in Table 4.

Table 4: NLEP SRA Project roles and responsibilities

Position	Responsibility
Chief Executive Officer (CEO)	Ensures that systems are in place to manage environmental aspects and impacts to GPC
Executive General Manager – Asset Management	Project owner
Project Manager	Coordination and oversight of Project activities (including regulatory approvals), approval/endorsement and implementation of this document and associated management plans
Civil/Structural Engineer	GPC contact for operational issues and management of construction works, including contractors
GPC Earthworks Superintendent	Construction of the NLEP SRA bund wall while adhering to the requirements of this CEMP and all associated plans listed in Section 4
Environment Superintendent	Ensures environmental management, reporting and auditing responsibilities are met
Environmental Specialist – Compliance	Responsible for monitoring of CEMP implementation and compliance with approval conditions (including undertaking reviews, inspections, audits, incident investigation support and internal/external reporting)
Environment Specialist Monitoring and Measurement	Responsible for the coordination of GPC environmental monitoring programs (including adaptive management processes)
Environment Hotline	General and after hours contact for the GPC Environment team – (07) 4976 1617
Project Communications Specialist	Responsible for the NLEP SRA Social Impact Management Plan, Communications and Stakeholder Engagement Plan, and future Social Impact Management Reports

8.1 Contractor management system

GPC, as part of its operations, uses contractors (e.g. for geofabric installation). GPC has obligations to ensure that the activities undertaken by, or on its behalf, do not present unacceptable risks to the environment, and are undertaken in a lawful manner. To ensure the activities of contractors are identified, assessed and managed, the following contractor management controls are in place:

- Pre-qualification evaluation
- Procurement Policy
- Environmental Standards
- Induction
- Regular communication between GPC and the contractor
- Audits and inspections
- Incident investigations.

9 Risks

Risks for the construction of the NLEP SRA have been assessed and recorded in the Environmental Risk Assessment for the project (#1897800).

The implementation and effectiveness of risk controls are monitored through processes (such as periodical risk reviews, audits, inspections, incident and complaint investigations, and reporting).

9.1 Measures, plant and equipment

GPC will install, maintain and operate all relevant measures, plant and equipment (including monitoring equipment) in a proper, effective and efficient way which ensures compliance with the conditions of this EMP and relevant approvals. There will be no change, replacement, alteration or operation of any plant or equipment if the change, replacement, alteration or operation will increase or is likely to substantially increase the risk of environmental harm during works.

If a contractor is responsible, they will ensure that they install, maintain, calibrate and operate all relevant measures, plant and equipment utilised in their scope of works or contract in order to ensure compliance with the conditions of this CEMP and relevant approvals (e.g. operate in a proper, effective and efficient manner and keep records).

10 Environmental training

GPC must ensure that employees and contractors working on this Project have received the appropriate level of environmental training, and that all relevant records are retained in accordance with GPC's environmental approvals. The aim of this training is to ensure that all persons involved in the activity comply with the environmental approvals by providing a 'read and understood' declaration.

GPC employees have training and awareness delivered in a variety of ways, such as inductions and mandatory training.

GPC shall ensure that relevant employees are aware and are familiar with the requirements of this CEMP, its associated documents as listed in Section 4, and the approvals relevant to the task.

It is the contractor's responsibility to ensure that all their employees, including subcontractors, are:

- Suitably trained for any and all activities for which training is required in order to ensure legislative compliance and to prevent environmental harm during normal operation and in emergencies
- Reading, understanding and applying the requirements outlined in this EMP, its associated approvals and legislation
- Inducted for the works being undertaken
- Untrained persons must remain under the close supervision of a suitably-trained person
- Training records shall be maintained and made available to GPC on request.

11 Audits and inspections

Internal auditing/inspections will be undertaken to confirm that activities are carried out in accordance with the defined requirements set out in this CEMP and relevant approvals.

For contractor works, GPC staff upon request will be afforded access to witness, inspect, examine or audit any part of the contractor's operations. If requested by a regulatory agency, nominees of the relevant agency will be afforded access to witness, inspect, examine or audit any part of the operations.

GPC will carry out periodical inspections and an annual performance review as required by the development approval (DA). Records of these inspections, along with any corrective or improvement actions arising from inspections or audits, will be entered into GPC's incident management system, SAI360.

11.1 Independent environmental auditing

An independent environmental audit of compliance with Project approval conditions and requirements of this CEMP will be undertaken by a certified Environmental Auditor. A close-out audit will be conducted upon completion of the Project.

As per EPBC Act controlled action approval conditions 68 and 69, independent audits may occur if requested by the Minister. Access for inspection is also required for Department of Primary Industries (DPI) as per SRA conditions 17 and 22.

12 Complaints

The Project Manager must be notified within 48 hours by GPC staff and/or the engaged contractor on receipt of a complaint regarding perceived or real environmental nuisance or harm, as a result of an activity specific to the works covered by the scope of this CEMP and any other associated works. To ensure timely response to complaints, the following process has been established.

The following details must be collated for all complaints received.

- Time, date, name and contact details of the complainant
- Reasons for the complaint
- Any investigations undertaken
- Conclusions formed
- Any actions taken.

All environmental complaints will be recorded in SAI360 and responded to in accordance with GPC's Environmental Complaints Management Procedure (#1044716).

GPC will provide relevant information to GPC Planning (Assessment Manager), DCCEEW and/or DETSI in accordance with relevant environmental approval condition requirements.

13 Environmental non-compliances and incidents

The Project Manager must be notified within 48 hours after GPC and/or engaged contractor has become aware of any environmental non-compliance and incidents specific to Project activities covered by the scope of this CEMP and environmental approval conditions. Details of environmental incidents will be recorded in GPC's incident reporting system in accordance with the Incident Management and Investigation Procedure (#1075526), which details the requirements to report and record investigations, as well as corrective actions and management of the close out incidents.

Non-compliance and incidents are recorded in SAI360l, which hold all relevant details of the non-compliance and incident, including immediate corrective actions, investigations and/or monitoring undertaken, conclusions formed and improvement actions identified to reduce the risk of reoccurrences.

Written advice will be provided by GPC to the relevant administering authorities in accordance with the conditions of the appropriate approval.

The following details may be required:

- Name of the registered operator, including development approval number
- The name and telephone number of a designated contact person
- The location of the release/event
- The time of the release/event
- The time you became aware of the release/event

- The suspected cause of the release/event
- The sensitive receptor(s) that may have been impacted
- A description of the resulting effects of the release/event
- The results of any sampling performed in relation to the release/event
- Actions taken to mitigate any environmental harm and or environmental nuisance caused by the release/event
- Proposed actions to prevent a recurrence of the release/event
- The contractor's incident reporting procedure will be included in the contractor's CEMP and must include the requirements outlined in this CEMP.

GPC must notify DETSI and DCCEEW and the GPC Environment team in writing of any incident resulting from activities undertaken as part of the Project works which:

- Causes or has the potential to cause environmental harm
- Is unlawful
- Involves the release of a contaminant
- Involves marine megafauna injury or death
- Identifies a new environmental risk
- Is not in accordance with the CEMP
- Is not in accordance with the Environmental approval conditions.

This notification is to take place in accordance with the following methods and timeframes:

- Verbal notification immediately after occurrence of non-compliance or incident to the GPC's Project Manger
- Written notification within 24 hours of occurrence of non-compliance or incident to the GPC's Environment Superintendent and Port Infrastructure Asset Manager
- Written notification to GPC Planning (Assessment Manager), DCCEEW and DETSI no later than two (2) business days after becoming aware of the non-compliance or incident. The notification will specify:
    - Any condition which is or may be in breach
    - A short description of the non-compliance and/or incident
    - The location (including coordinates), date, and time of the non-compliance and/or incident. In the event the exact information cannot be provided, provide the best information available.

- Full investigation report within 10 business days after becoming aware of the non-compliance or incident, specifying:
  - Any corrective action or investigation which GPC has already taken or intends to take in the immediate future
  - Potential impacts of the non-compliance or incident
  - Method and timing of any remedial action that will be undertaken by GPC.

GPC (or the contractor) must telephone DETSI's Pollution Hotline (1300 130 372) immediately after becoming aware of any incident involving injury, fatality or other harm to any species of turtle or marine mammal during Project activities.

Approval conditions related to incidents or non-compliance are tabulated in Table 5.

Table 5: Summary of the Project statutory approvals

Approval	Condition no	Condition
DA2022/10/01	29	At all times, GPC's Environment Hotline (07) 49761 617 is to be notified of the occurrence of any: a) Release/spill of contaminants (e.g. fuels/chemicals/sewerage) greater than 20L to land b) Release/spill of contaminants (e.g. fuels/chemicals/sewerage) any amount to water c) Any environmental complaints received by the holder of this approval. Non-compliances with environment-related conditions of this approval or any other approval obtained in relation to the approved activity
DA2022/10/01	30	Environment incident notification must be included in any Environmental Management Plans for the premises development
EPBC 2012/6558	66	The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two (2) business days after becoming aware of the incident or non-compliance. The notification must specify: a) Any condition which is or may be in breach b) A short description of the incident and/or non-compliance c) The location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.
EPBC 2012/6558	67	The approval holder must provide to the Department the details of any Incident or non-compliance with the conditions or commitments made in plans as soon as practicable, and no later than 10 business days after becoming aware of the incident or non-compliance, specifying: a) Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future b) The potential impacts of the incident or non-compliance

Approval	Condition no	Condition
		c) The method and timing of any remedial action that will be undertaken by the approval holder.

14 Records

All records required by this CEMP, associated documents and the relevant environmental approvals must be kept for at least five (5) years. Environmental monitoring results must be kept for a minimum of 15 years. Records will be kept in GPC's Electronic Document Management System.

Records will include as a minimum:

- All Project approvals
- Project engineering drawings
- Management plans
- All Inspection and audit reports
- Incident and complaints records
- Correspondence with the administering authority as per approval condition requirements
- All monitoring records described in this CEMP and associated documents
- Minutes of meetings
- All contractual documentations.

All records required by this CEMP and associated permits must be provided by the contractor to GPC upon request and/or at the completion of the Project activities.

GPC will make compliance records available to the Department upon receipt of a written request in accordance with Condition 63 of EPBC 2012/6558.

15 Emergency preparedness

GPC has an Emergency Management Plan (#1494019) that outlines GPC's approach towards, preparedness for response to, and recovery from, an emergency situation. In addition to the overarching Emergency Management Plan, GPC has procedures covering:

- Bushfire Preparedness and Response
- Cyclone Preparedness and Response
- Biosecurity Prevention Preparedness Response and Recovery
- Spill Prevention Preparedness Response and Recovery
- Crisis Management.

GPC has taken a comprehensive all hazards approach to emergency management that adopts the **P**revention, **P**reparedness, **R**esponse and **R**ecovery (PPRR) model used by all Australian emergency management agencies.

The intent of the PPRR model is to ensure that plans are in place to minimise losses in the event of an incident by anticipating possible direct impacts to the business, as well as impacts on GPC suppliers and customers, which may flow on to GPC business. This comprehensive approach to emergency management focuses on developing the resilience of GPC staff and the building capacity of the business to manage emergencies.

PPRR steps:

- **Prevention** – take actions to reduce or eliminate the likelihood of an incident or reduce its impacts
- **Preparedness** – take steps before an incident to ensure effective response and recovery
- **Response** – contain, control or minimise the impacts of an incident
- **Recovery** – take steps to minimise disruption and recovery times.

In the event of a cyclone or other extreme weather event, GPC will enact the Fisherman's Landing Emergency Management Plan (#1494335v3), as required by DA2022/10/01 condition 7 and use the Cyclone Checklist to guide proactive adaptive management.

A Severe and Extreme Weather Trigger Action Response Plan has been developed detailing the specific actions required in the event of:

- Dangerous thunderstorms
- Strong winds
- Heavy rain
- Lightning
- Hail.

The Bureau of Meteorology (BoM) issues tropical cyclone advices whenever a tropical cyclone is expected to cause winds in excess of 62km/h (gale force) over land in Australia. A tropical cyclone advice may be a watch and/or a warning, depending on when and where the gales are expected to develop.

A **tropical cyclone watch** is issued for coastal communities when the onset of gales is expected within 48 hours, but not within 24 hours.

A **tropical cyclone warning** is issued for coastal communities when the onset of gales is expected within 24 hours, or are already occurring.

If a rated cyclone approached within 200km of Gladstone, construction works will pause until the cyclone passes. Appropriate safety site preparation will be undertaken prior to site shut down. Stockpile of armour material will be held by the quarry, sufficient to cover any exposed core material on the outer face if a cyclone were to approach Gladstone. This mitigation measure will minimise impacts on protected matters in relation to increases in turbidity and sedimentation from the bund wall. The likelihood of discovery of any unexploded ordinances during construction is extremely unlikely as the area has not been a site for any defence

activity. However, if any such item is located, work with cease and Queensland Fire and Emergency Services will be contacted for further actions.

16 Communication

The Project Manager is the main point of contact with the GPC Earthworks team and contractor and is supported by the Civil/Structural Engineer and the GPC Environment team to achieve compliance with the CEMP, associated documents and environmental approval conditions.

NLEP SRA Project communications and engagement will be managed by the Project Communications Specialist through the Social Impact Management Plan (SIMP) and its supporting Communications and Stakeholder Engagement Plan (CSEP). The SIMP and CSEP are prepared pursuant to the conditions stated in the 2020 Coordinator-General's Evaluation Report on the GGCCDP Environmental Impact Statement (EIS). The documents are based on a 2019 Social Impact Assessment (SIA), as part of the GGCCDP EIS. It is important to note that these documents only address identified social impacts associated with the construction of the NLEP SRA outer bund wall. The social impacts associated with future dredging and the development of future industrial land uses will be addressed in separate documents.

As per the Coordinator-General's project approval conditions, communication and stakeholder engagement monitoring and reporting data will be provided in the annual published Social Impact Management Report (SIMR). The SIMRs will report community attitudes towards the project and key themes received from feedback mechanisms, including how key complaints have been resolved.

Key stakeholders identified are:

- Government representatives
- Recreational and commercial fishers
- First Nations representatives
- Tenants and future tenants
- Environmental groups.

17 Review

This CEMP, its operation and implementation, and its associated documents, will be reviewed on an annual basis and revised (if required) and following the findings of internal and external audits and/or in the event that a performance indicator is not met. Reviews of the performance of the Project CEMP in achieving its objectives to support continuous improvement will be undertaken at least annually.

As part of the CEMP review process, including the further development of management actions and procedures, GPC will utilise a combination of in-house, universities and consultants scientific and technical experts which are provided in Appendix 1.

Revisions are to be kept as a new version in GPC's document management system. If commitments are added or changed, these must be communicated to and approved by all relevant GPC employees, engaged contractors and administering authorities.

In accordance with the EPBC Act controlled action condition 71, GPC will apply to the Commonwealth Minister for a variation to this CEMP by submitting an application in accordance with the requirements of Section 143A of the EPBC Act. If the Minister approves a revised CEMP, then from the date specified, GPC will implement the revised CEMP in place of the previous CEMP.

18 Reporting

Reporting to stakeholders will be conducted in accordance with the Project's Communications and Stakeholder Engagement Plan. NLEP SRA Project communications and stakeholder engagement monitoring and reporting data will be provided in the annual published Social Impact Management Report (SIMR). The SIMRs will report community attitudes towards the project and key themes received from feedback mechanisms, including how key complaints have been resolved.

Compliance reporting will be conducted in accordance with the approval conditions highlighted in Table 6.

Table 6: Approval conditions pertaining to reporting

Condition no.	Condition
EPBC Act controlled action approval (EPBC 2012/6558)	
59	The approval holder must notify the Department in writing of the date of commencement of the action within 10 business days after the date of the commencement of the action.
61	The approval holder must notify the Department in writing of the date of the commencement of each Project stage within 10 business days after the date of the commencement of that Project stage.
63	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.
64	The approval holder must: a. Submit plans electronically to the Department b. Unless otherwise agreed to in writing by the Minister, publish each plan on its website within 20 business days of the date of: i. this approval, if the approved version of the plan is specified in these conditions, or ii. the date a plan is submitted to the Department, if the plan does not require the approval of the Minister and is not finalised before the date of this approval, or iii. the date a plan has been approved by the Minister in writing, if the plan requires the approval of the Minister c. Exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public d. Keep plans published on the website for the duration of this approval.
65	The approval holder must prepare a compliance report for each 12 month period following the date of commencement of the action, or otherwise in accordance with an annual date that has been agreed to in writing by the Minister. The approval holder must: a. Publish each compliance report on the website within 60 business days following the relevant 12 month period

Condition no.	Condition
	b. Notify the Department by email that a compliance report has been published on the website and provide the web link for the compliance report within five (5) business days of the date of publication c. Keep all compliance reports publicly available on the website until this approval expires d. Exclude or redact sensitive ecological data from compliance reports published on the website e. Where any sensitive ecological data has been excluded from the version published, submit the full compliance report to the Department within five (5) business days of publication. Note: Compliance reports may be published on the Department's website.
66	The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two (2) business days after becoming aware of the incident or non-compliance. The notification must specify: a. Any condition which is or may be in breach b. A short description of the incident and/or non-compliance c. The location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available.
67	The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying: a. Any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future b. The potential impacts of the incident or non-compliance c. The method and timing of any remedial action that will be undertaken by the approval holder.
72	Within 30 days after the completion of each Project stage, the approval holder must notify the Department in writing and provide completion data.
Operational Work – Tidal Work (NLEP SRA Bund Wall) (2205-28989 SRA)	
3	Submit Registered Professional Engineer of Queensland (RPEQ) certified, GPS-referenced plans to palm@des.qld.gov.au for structures relating to the containment of dredged material and other earth material required to allow development to occur on the reclaimed area. At least 20 business days prior to the commencement of work.
4	a. Prepare an Erosion and Sediment Control Plan in accordance with the latest edition of the *Best Practice Erosion and Sediment Control (BPESC) guidelines for Australia (International Erosion Control Association)* b. Provide the Erosion and Sediment Control Plan to palm@des.qld.gov.au c. Undertake the work generally in accordance with the Erosion and Sediment Control Plan. Provide written evidence from a suitably qualified person that all elements of this condition have been complied with.
5	Submit as-constructed drawings of the completed work to palm@des.qld.gov.au
Operational Work – Removal, destruction, or damage of a marine plant	
15	Provide written notice to the Department of Agriculture and Fisheries at notifications@daf.qld.gov.au, advising when the development authorised under this referral agency response 2205-28989 SRA:

Condition no.	Condition
	a. Will start b. When it has been completed. Any notice must state the application's reference number: 2205- 28989 SRA. *n.b. Department of Agriculture and Fisheries is now the Department of Primary Industries*
Operational Work – Constructing or raising waterway barrier works	
20	Provide written notice to the Department of Agriculture and Fisheries at notifications@daf.qld.gov.au, advising when the development authorised under this referral agency response 2205-28989 SRA: a. Will start b. When it has been completed. Any notice must state the application's reference number: 2205- 28989 SRA. Time frames: a. At least five (5) business days, but no greater than 20 business days prior to the commencement of work b. Within 15 business days of the completion of the waterway barrier works. *n.b. Department of Agriculture and Fisheries is now the Department of Primary Industries*
27	a. A person or entity that is suitably qualified and experienced in fish biology, must physically oversee the aquatic (fish) salvage and water monitoring associated with fish salvage b. The person or entity who supervises the approved works must prepare and submit to notifications@daf.qld.gov.au, a report confirming: i. how the fish salvage was physically overseen ii. that the 'as approved' fish salvage complied with condition 24. The email attaching the report must state this permit number (2205-28989 SRA), the location and name of work, and this condition number under which the report is being given.
Development Permit for Operational Works that is tidal works within a coastal management district	
12	a. Provide written notice to the Regional Harbour Master (Gladstone) via email to Gladstone.rhm@msq.qld.gov.au when the development authorised under this approval is scheduled to commence. Timing: at least two (2) weeks prior to the commencement of construction works. b. Provide written notice to the Regional Harbour Master (Gladstone) via email to Gladstone.rhm@msq.qld.gov.au, when the development authorised under this approval has been completed. Timing: within two (2) weeks of the completion of construction works. Each notice must state this application number, the location and name of registered place and the condition number under which the notice is being given.
14(b)	Provide a copy of the Marine Execution Plan (MEP) to the Regional Harbour Master (Gladstone) via email to: Gladstone.rhm@msq.qld.gov.au within two (2) weeks prior to the commencement of reclamation works.
Development Permit for Operational Works for matter regulated under the *Fisheries Act 1994* (2205-28989 SRA)	
1(1)	Provide written notice to notifications@daf.qld.gov.au, when the development authorised under this approval will start at least five (5) business days but no greater than 20 business days prior to the commencement of the works.

Condition no.	Condition
1(2)	Provide written notice to notifications@daf.qld.gov.au, when the development authorised under this approval when it has been completed within 15 business days of the completion of the fisheries development works.
Development Approval DA2022/10/01	
5	Upon completion of the works, the proponent must supply the Assessment Manager with RPEQ certified "As Constructed" plans in both hard copy (two/2 of) and electronic (CAD format) which illustrate all infrastructure and services installed on, under or over Port land associated with the activity.
7	Prior to construction works commencing, prepare and submit to the Assessment Manager an Emergency Management Plan, including a Cyclone Management Plan.
9	Prior to works commencing, the proponent must submit to the Assessment Manager for review details of proposed mitigation measure/s to reduce skyglow from all external lighting associated with the development.
12	Upon completion of construction and within three (3) months, the applicant shall provide the Assessment Manager with written confirmation that the seabed (beyond the approved footprint) is clear of foreign materials
13	The applicant must notify the Assessment Manager (Gladstone Ports Corporation Limited) of damage caused to any port or port user infrastructure or services including, but not limited to, security related devices, buildings, fences, lighting etc., roads, walkways and underground services or infrastructure, as a result of the approved use or during construction. The proponent must undertake necessary repairs at their expense and to the satisfaction of the Assessment Manager (Gladstone Ports Corporation Limited).
14	An Erosion and Sediment Control Plan for any associated works on land or receiving environment, is to be prepared prior to construction works commencing and in conjunction with the Construction Environmental Management Plan (CEMP) and the Receiving Environment Monitoring Program (REMP). The plan is to be prepared by a suitably qualified and experienced person(s) in accordance with the Best Practice Erosion and Sediment Control Guidelines for Australia (International Erosion Control Association) and submitted to the Assessment Manager for approval.
20	Unless otherwise agreed to in writing by the Assessment Manager, prior to construction works commencing on site, a final Traffic Management Plan (TMP) specific to the construction works being undertaken must be submitted to the Assessment Manager for approval. The TMP must be amended and approved by the Assessment Manager as necessary for any proposed or amended construction works. All activities associated with construction must be carried out in accordance with the approved TMP.
21	Prior to works within Port Limits commencing, supply to the Assessment Manager a copy of the Marine Execution Plan that has been approved by the Regional Harbour Master.
26	In the event acid sulfate soils are disturbed/excavated and require treatment on site or any land owned by GPC, a site-specific Acid Sulfate Soils Management Plan, including treatment locality and volumes and disposal locality, must be submitted to the Assessment Manager for approval prior to such works commencing. Upon approval of the management plan, the works must be carried out in accordance with this plan and the plan will form part of the approved plans.

Condition no.	Condition
27	Prior to works commencing on site, a Construction Environmental Management Plan (CEMP) specific to this application and its associated works, is to be submitted to the Assessment Manager (GPC) for approval, that ensures: a. Environmental risks, including but not limited to, noise, odour, stormwater, lighting, dust, hours of operation/works, waste and potential acid sulphate soils are identified, managed and continually assessed in relation to the construction activity b. That staff are trained, aware and competency assessed of their obligations under the CEMP, including a copy of the management plan and development approval available on site at all times a) reviews of environmental performance are undertaken at least annually b) any amendments to the CEMP are to be submitted to GPC for review and approval. Once approved by the Assessment Manager (GPC), the construction activity must be carried out in accordance with this CEMP. *Note: GPC has a guideline for the development of Environmental Management Plans that may be utilised in meeting the requirements of this condition. Additionally, the CEMP has been prepared in accordance with the Environmental Management Plan Guidelines, Commonwealth of Australia (2014).*
28	Prior to works commencing, a Receiving Environment Monitoring Program (REMP) specific to this application and its associated works, is to be submitted to the Assessment manager (GPC) for approval. The REMP must identify the environmental values of the receiving environment, and monitoring programs to be established which ensure that the identified values are protected or enhanced for the duration of the associated works. Any changes to the REMP must be submitted to the Assessment Manager for approval.
Environmental Authority PA-EA-100261837	
G3	Any breach of a condition to this environmental authority must be reported to the administering authority as soon as practicable within 24 hours of you becoming aware of the breach. Records must be kept including full details of the breach and any subsequent actions undertaken.
G8	When required by the administering authority, monitoring must be undertaken in the manner prescribed by the administering authority, to investigate a complaint of environmental nuisance arising from the activity. The monitoring results must be provided to the administering authority, or nominated delegate, within the specified time period and in the specified format upon request.
G9	Written notification of the commencement date must be provided to the administering authority at least five (5) business days prior to establishing the construction or dredging activity.
A2	Air Quality Management Plan. An Air Quality Management Plan must be developed and implemented by an appropriately qualified and experienced person(s) prior to the commencement of activities. The Air Quality Management Plan must be submitted to the administering authority at least 60 business days prior to commencement of construction or dredging activities. The proponent will amend the Air Quality Management Plan in accordance with any comments made by the administering authority prior to the commencement of construction or dredging activities.

Condition no.	Condition
A7	If the monitoring which is carried out in accordance with Condition A6 indicates an exceedance of the relevant limits in Condition A5, then the holder of this environmental authority must notify the administering authority within seven (7) days of an exceedance and investigate whether the exceedance is due to emissions from the activity. If the dredging activity is found to be the cause of the exceedance, then the holder of this environmental authority must: • address the complaint including the use of appropriate dispute resolution if required; and • immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
L2	The sediment sampling and analysis plan report on the suitability of the dredged material for land reclamation must be submitted to the administering authority at least 50 business days prior to the commencement of the dredging activity.
L4	A copy of the ASSMP must be submitted to the administering authority at least 50 business days prior to the commencement of the dredging activity and the proponent will amend the ASSMP in accordance with any comments made by the administering authority prior to the commencement of the dredging activity. An appropriately qualified and experienced person(s) must design and be responsible for the implementation of the ASSMP.
L5	The ASSMP must be provided to palm@des.qld.gov.au or mailed to: ATTN: Coastal and Marine Assessment Department of Environment and Science Permit and License Management Implementation and Support Unit GPO Box 2454 Brisbane Qld 4001
L6	A copy of the Closure Report (including the results of “handover testing”) in accordance with the Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines for the dredged material must be provided to the administering authority within 12 months of dredging completion

19 Environmental management measures

To ensure that the Project activities do not cause any environmental harm or nuisance and to minimise any impacts to the protected matters relevant to the Project EPBC Act controlled action approval (EPBC 2012/6558) the management measures outlined in this section will be implemented.

Section 8.1summarise the potential Project impacts on the Project EPBC Act controlled action approval protected matters and the location where the relevant management measures are provided in this section.

Table 7: Potential Project impacts on protected matters and CEMP section that contains management measures to avoid and minimise impacts on protected matters

Protected matter	Potential Project impact	CEMP section that contains management measures
Coral reefs	• Increase in turbidity at coral reef locations within the Port of Gladstone results in decrease in coral reef health • Decrease in water quality at coral reefs within the Port of Gladstone results in decrease in coral reef health from low pH from disturbance of acid sulfate soils, Project equipment leaks or spills into marine waters, and/or Project release of hazardous substances and/or waste	While no Project impacts on coral reefs within the Port of Gladstone are likely (i.e. outside the zone of influence of the Project), the management measures contained within the following sections will minimise impacts to this protected matter: • Section 19.2 (acid sulfate soils) • Section 19.5 (flora, fauna and water quality) • Section 19.7 (pests) • Section 19.8 (hazardous substance and waste) • Section 19.9 (erosion and sediment control and stormwater) • Section 19.10 (traffic considerations)
Marine water quality	• Increase in turbidity for marine waters within the Port of Gladstone • Decrease in marine water quality within the Port of Gladstone from low pH from disturbance of acid sulfate soils, Project equipment leaks or spills into marine waters, and/or Project release of hazardous substances and/or waste	The management measures contained within the following sections will minimise impacts to this protected matter: • Section 19.2 (acid sulfate soils) • Section 19.5 (flora, fauna and water quality) • Section 19.8 (hazardous substance and waste) • Section 19.9 (erosion and sediment control and stormwater)
	• Increase in fine-grained sediment within marine waters of the GBRWHA	This potential impact is a Project indirect impact with the significant residual impact to be determined post construction of the NLEP SRA in accordance with the Project EPBC Act controlled action condition 19(d) (refer NLEP SRA Project Stage 1 Offset Strategy)
Marine megafauna (dugongs, species of whale, species of dolphins, migratory whales)	• Loss of seagrass and macroalgae and associated dugong and dolphin habitat from direct impact from the construction of the NLEP SRA outer bund wall	The significant residual impact from the Project direct impact has been addressed in the NLEP SRA Project Stage 1 Offset Strategy (refer Section 4.3 of the Offset Strategy)

Protected matter	Potential Project impact	CEMP section that contains management measures
Listed migratory species – Australian humpback dolphin and dugong	• Loss or decrease in seagrass and macroalage health and associated dugong and dolphin habitat from increase in turbidity and/or sedimentation at seagrass and macroalgae areas outside of the Project direct impact area • Loss or decrease in seagrass and macroalgae health and associated dugong and/or dolphin habitat from Project release of hazardous substances, waste and/or Project vehicle leaks or spills at seagrass and macroalgae areas outside of the Project direct impact area • Injury or mortality of dugongs and/or dolphins due to Project release of hazardous substances and/or waste	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.5 (flora, fauna and water quality) • Section 19.7 (pests) • Section 19.8 (hazardous substance and waste) • Section 19.9 (erosion and sediment control and stormwater)
	• Loss of dugong and dolphin habitat (i.e. seagrass and macoalgae) from indirect hydrodynamic impacts caused by the establishment of the NLEP SRA	This potential impact is a Project indirect impact with the significant residual impact to be determined post construction of the NLEP SRA in accordance with the Project EPBC Act controlled action condition 19(c) (refer NLEP SRA Project Stage 1 Offset Strategy)
	• Temporary displacement of marine megafauna during the placement of rock within intertidal and marine waters • Injury, mortality, entrapment or standing of dugongs and/or dolphins during construction of the bund wall or during bund closure	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.5 (flora, fauna and water quality)
Marine turtles Listed threatened species – Loggerhead turtle, Olive ridley turtle, Flatback turtle, Green turtle and Hawksbill turtle	• Loss of seagrass and macroalgae and associated marine turtle habitat from direct impact from the construction of the NLEP SRA outer bund wall	The significant residual impact from the Project direct impact has been addressed in the NLEP SRA Project Stage 1 Offset Strategy (refer Section 4.3 of the Offset Strategy)
	• Loss of marine turtle habitat (i.e. seagrass and macoalgae) from increase in turbidity and/or sedimentation at seagrass and macroalgae areas outside of the Project direct impact area	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.5 (flora, fauna and water quality) • Section 19.7 (pests)

Protected matter	Potential Project impact	CEMP section that contains management measures
	• Loss or decrease in seagrass and macroalgae health and associated marine turtle habitat from Project release of hazardous substances, waste and/or Project vehicle leaks or spills at seagrass and macroalgae areas outside of the Project direct impact area • Injury or mortality of marine turtles due to Project release of hazardous substances and/or waste	• Section 19.8 (hazardous substance and waste) • Section 19.9 (erosion and sediment control and stormwater)
	• Loss of marine turtle habitat (i.e. seagrass and macoalgae) from indirect hydrodynamic impacts caused by the establishment of the NLEP SRA	This potential impact is a Project indirect impact with the significant residual impact to be determined post construction of the NLEP SRA in accordance with the Project EPBC Act controlled action condition 19(c) (refer NLEP SRA Project Stage 1 Offset Strategy)
	• Temporary displacement of marine turtles during the placement of rock within intertidal and marine waters • Injury, entrapment or standing of marine turtles during construction of the bund wall or during bund closure	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.5 (flora, fauna and water quality)
Seagrass and macroalgae	• Loss of seagrass and macroalgae from direct impact from the construction of the NLEP SRA outer bund wall	The significant residual impact from this Project direct impact has been addressed in the NLEP SRA Project Stage 1 Offset Strategy (refer Section 4.3 of the Offset Strategy)
	• Loss of seagrass and macoalgae from increase in turbidity and/or sedimentation at seagrass and macroalgae areas outside of the Project direct impact area • Loss of seagrass and macoalgae from indirect hydrodynamic impacts caused by the establishment of the NLEP SRA	The management measures contained within the following sections will minimise impacts to this protected matter: • Section 19.2 (acid sulfate soils) • Section 19.5 (flora, fauna and water quality) • Section 19.8 (hazardous substance and waste) • Section 19.9 (erosion and sediment control and stormwater)
Shorebirds and migratory seabirds Listed migratory species – Eastern curlew	• Loss of Eastern curlew intertidal mudflat foraging habitat from direct and indirect impacts from the construction of the NLEP SRA outer bund wall	The significant residual impact from the Project direct and indirect impacts have been addressed in the NLEP SRA Project Stage 1 Offset Strategy (refer Section 3.3 of the Offset Strategy)

Protected matter	Potential Project impact	CEMP section that contains management measures
	• Temporary increase noise, vibration and/or light levels results in temporary displacement of foraging shorebirds, migratory seabirds and/or Eastern curlews • Injury or death of shorebirds, migratory seabirds and/or Eastern curlews from construction equipment and/or placement of rock	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.3 (air quality, noise, vibration and lighting) • Section 19.5 (flora, fauna and water quality)
	• Loss of potential shorebird, including Eastern curlew foraging habitat (intertidal areas adjacent to the NLEP SRA) from hydrodynamic impacts caused by the closure of the bund wall and establishment of the NLEP SRA	This potential impact is a Project indirect impact with the significant residual impact to be determined post construction of the NLEP SRA in accordance with the Project EPBC Act controlled action condition 19(a) (refer NLEP SRA Project Stage 1 Offset Strategy)
Flora, fauna and ecological communities Note: coral reefs, seagrass, macroalgae, shorebirds, migratory seabirds and Eastern curlew protected matters are provided above	• Temporary increase noise, vibration and/or light levels results in temporary displacement of native fauna • Dust from construction activities covers foreshore vegetation resulting in a loss or reduction in vegetation condition	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.3 (air quality, noise, vibration and lighting)
Diversity supporting marine fauna species	Potential Project impacts on the diversity supporting marine fauna species are provided in marine megafauna and marine turtles protected matters above	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.5 (flora, fauna and water quality) • Section 19.7 (pests) • Section 19.9 (erosion and sediment control and stormwater)
Total species diversity	Potential Project impacts on the total species diversity are provided in coral reefs, seagrass, macroalgae, marine megafauna, marine turtles, flora, fauna and ecological communities protected matters above	The management measures contained within the following sections will minimise impacts to these protected matters: • Section 19.2 (acid sulfate soils) • Section 19.3 (air quality, noise, vibration and lighting) • Section 19.5 (flora, fauna and water quality) • Section 19.7 (pests) • Section 19.8 (hazardous substance and waste)

Protected matter	Potential Project impact	CEMP section that contains management measures
		• Section 19.9 (erosion and sediment control and stormwater)
Listed threatened species – Water mouse	Loss of potential Water mouse habitat (foreshore area adjacent to the NLEP SRA) from hydrodynamic impacts caused by the establishment of the NLEP SRA	This potential impact is a Project indirect impact with the significant residual impact to be determined post construction of the NLEP SRA in accordance with the Project EPBC Act controlled action condition 19(b) (refer NLEP SRA Project Stage 1 Offset Strategy)

19.1 Sediment quality and resuspension

Sediment quality investigations within the NLEP SRA bund wall footprint were conducted in August 2020, which included drilling and sampling of 89 bores to a depth of 1.5m below seabed or until refusal.

Results from the geochemical investigation within the proposed NLEP SRA bund wall footprint were screened against the "NAGD" Sediment Quality Guidelines (high), which indicated that contaminant concentrations comply with the NAGD (2009) screening levels. No analytes in any samples returned results exceeded the Sediment Quality Guidelines (high). However, five (5) samples marginally exceeded the screening levels for arsenic.

No contaminants are present within bund wall materials as the rock materials are sourced from a metamorphic rock mass which is blasted to required grading. Blasting practices have been modified to remove blast plastics (contaminants) from core rock materials and rock products are screened to grade at the quarry. Any geotexile material used, will be as per the relevant standard for the application required.

As such, it is considered that the remobilisation of these sediments into the water column during bund wall construction will not result in the introduction of contaminants.

The potential Project sediment quality impacts relevant to the Project EPBC Act controlled action approval protected matters relate to poorly managed or contaminated resuspended sediments which have the potential to:

- Increase in turbidity at coral reef locations within the Port of Gladstone results in decrease in coral reef health
- Loss of seagrass and macroalgae and associated dugong, dolphin and/or marine turtle habitat from increase in turbidity and/or sedimentation at seagrass and macroalgae areas outside of the Project direct impact area
- Loss of seagrass and macoalgae and associated dugong, dolphin and/or marine turtle habitat (i.e. seagrass and macoalgae) from indirect hydrodynamic impacts caused by bund closure and the establishment of the NLEP SRA
- Increase in fine-grained sediment within marine waters of the GBRWHA.

The overall process and procedures for preventive management of sediment quality impacts on the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project-related impacts from the geochemical properties of the resuspension of sediment during the placement of rock material have no significant impact on the Project EPBC Act controlled action approval protected matters
Objectives	• To avoid loss of coral reefs, seagrass and macroalgae, and associated dugong, dolphin, marine turtle and Eastern curlew foraging habitat outside of the Project direct impact area from Project-related increases in turbidity and/or sedimentation
Performance criteria and indicators	• The implementation of EWMA adaptive management measures results in the Project-related turbidity levels returning to below the EWMA External Alert Level 2 (refer REMP Section 9.2.3) • The implementation of EWMA adaptive management measures results in the Project-related BPAR levels returning to below the BPAR Alert Level 3 (refer REMP Section 9.3.5) • Avoid indirect impact loss from Project-related turbidity of seagrass and macroalgae areas outside of the Project direct impact area
Mitigation and management measures	• Implement the following Project monitoring programs and plans: - Water quality monitoring program (refer REMP Section 8.1) - BPAR monitoring program (refer REMP Section 8.2) - Seagrass and macroalgae monitoring program (refer REMP Section 8.3) and hydrodynamic changes monitoring plan (refer REMP Section 8.9) to determine if the Project results in a significant residual impact to the seagrass and macroalgae (refer NLEP SRA Project Stage 1 Offset Strategy, Section 4.5) - Bed level change monitoring and FGS validation monitoring program (refer REMP Sections 8.8 and 8.10) to determine the Project significant residual impact to FGS offset requirement (refer NLEP SRA Project Stage 1 Offset Strategy, Section 5) - NLEP SRA Bund Wall Integrity Monitoring Program (refer REMP Section 8.12). • If Project-related turbidity results in the seasonal EWMA Turbidity Internal Alert Level 1 to be exceeded for 36 consecutive hours or the seasonal EWMA External Alert Level 2 to be exceeded continuously for 24 hours the following EWMA adaptive management measures will be implemented: - Reduction in rock placement rates at any of the two (2) placement locations with efforts being redirected as appropriate - Progress of new work front only at low tide - Progress with construction at one work front, and/or - Working on the higher bund wall lift areas thus preventing direct seabed disturbance. The EWMA and BPAR adaptive management framework is detailed in Section 9 of the REMP. • If during the implementation of the NLEP SRA Bund Wall Integrity Monitoring Program visual inspections observe high turbidity in marine waters caused by rock placement, this information will be incorporated into the EWMA and BPAR adaptive management framework
Early warning trigger levels	• EWMA Turbidity Internal Alert Level 1 (refer REMP Section 9.2.1) • BPAR Internal Alert Level 1 (refer REMP Section 9.3.1)
Risk management and adaptive management	• Implement the adaptive management framework included in Section 9 of the REMP
Corrective actions and	• Implement the EWMA adaptive management measures as detailed above

emergency response measures	• Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.2 Acid sulfate soil

Sediment samples from the NLEP SRA geochemical investigation were screened for potential acid sulfate soils (PASS) using the peroxide screening test method. The pH values for all sediment samples ranged between 7.3 to 9.8 indicating the absence of actual acidity in the samples. The results of pHx for all sediment samples ranged from 1 to pH 6.5. A total of 88 samples measured pHFx below four (4) indicating the presence of PASS across the project area at various depths.

Based on these results, it is concluded that the construction of the NLEP SRA bund wall has the potential to disturb PASS through displacement of soft sediment and generation of mud waves.

The potential Project ASS impacts relevant to the Project EPBC Act controlled action approval protected matters include a decrease in water quality (low pH) at coral reefs, marine waters, seagrass and macroalgae, and associated dugong, dolphin and/or marine turtle habitat within the Port of Gladstone.

The overall process and procedures for preventive management of potential Project ASS impacts on the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project-related ASS impacts from the resuspension of sediment and/or mud waves during the placement of rock material has no significant impact on the Project EPBC Act controlled action approval protected matters
Objective	• To avoid loss of coral reefs, seagrass and macroalgae, and associated dugong, dolphin, marine turtles and Eastern curlew foraging habitat outside of the Project direct impact area from Project-related ASS impacts
Performance criteria and indicators	• Contractors are fully aware of their responsibilities under the Project Acid Sulfate Soil Management Plan (ASSMP) • All material displaced above mean high water neap (MHWN) has been identified • All displaced PASS material not able to be successfully redistributed below MHWN is removed, transported to a dedicated treatment pad in the WBRA and subsequently tested/treated • No surface water/leachate will be discharged from the PASS treatment areas prior to meeting the specified water quality criteria within the Project ERA16 EA conditions • Project water quality monitoring identifies low pH (i.e. < 6.5) at monitoring locations is Project related
Mitigation and management measures	Implement the Project ASSMP which includes the following key mitigation measures: • In relation to the redistribution of displaced PASS material during bund wall construction, key measures include: - Materials displaced by rock placement would be progressively redistributed during works through use of a long arm excavator, water cannon, suction dredge (or similar equipment) such that all materials remain below the MHWN mark

	- Upon completion of each 200m length of bund wall a bathymetric survey would be undertaken along the length of the completed section to determine the success of the redistribution works and the need for any further actions - Following completion of bund wall construction, a final survey and visual inspection will be undertaken to determine whether all displaced material is located below MHWN or whether further actions (either redistribution or removal may be required • If PASS redistribution works prove unsuccessful or impractical requiring PASS removal for offsite treatment will be removed and transported to a dedicated bunded treatment pad located within the WBRA for subsequent lime treatment, and implemented in accordance with the Project ASSMP. Key mitigation measures for this process include: - Preparation of a treatment pad - Identified material will be removed using a long arm excavator, or hydraulically pumped (or other suitable method determined in consultation with the Specialist ASS Environmental Consultant) - Excavated material shall be placed in a suitable haulage vehicle and transported to a dedicated treatment pad within the WBRA. - Material will be placed to a depth of <300mm in the treatment pad and limed at the maximum rate detailed for that location in the Project Geochemical and ASS Investigation Report, or sampled in accordance with the requirements contained in the Project ASSMP to determine a specific liming rate. • Material placed within the treatment pad will be sampled at the time of placement in accordance with the Project ASSMP • Materials requiring treatment will be neutralised with lime or equivalent agent to neutralise their net acidity based on the laboratory results. In determining the amount of lime or neutralising agent to be added, a mixing factor of safety of 1.5 will be used. Limed material will then be mixed with a rotary hoe or disc plough to a minimum depth of 300mm. • Following lime treatment, validation testing will be undertaken at the rate of four (4) samples per 1,000m^3 of treated material with analysis performed by the Chromium suite analysis (or equivalent). Treated material will achieve the performance criteria included in the Project ASSMP. • Subsequent treatment layers (<300mm) will not be placed within the treatment pad until validation testing results are obtained, indicating the complete neutralisation of the treated material • Following completion of bund wall construction and removal of displaced material, a further survey and visual inspection will be undertaken to determine whether all displaced material has been removed or if further works are required • A supply of neutralising agent preferable fine agricultural lime will be kept onsite at all times for treatment of acid sulfate soils. The supply will be stored in a covered and bunded area to prevent accidental release to the environment. • A supply of hydrated lime shall be kept onsite at all times for treatment of acidic waters (if encountered). Storage requirements for hydrated lime will be as specified for a neutralising agent or agricultural lime and in accordance with the manufacturer's SDS. • Implement the monitoring, auditing and reporting requirements included in the Project ASSMP
Early warning trigger levels	• Project-related low pH (<6.5) recordings at water quality monitoring locations

Risk management and adaptive management	• Implement the implementation strategy, monitoring and corrective actions contained in the Project ASSMP
Corrective actions and emergency response measures	• Pause bund construction works (if safe and practical to do so) and undertake necessary arrangements to immediately commence the redistribution of PASS material below MHWN • If PASS redistribution works prove unsuccessful or impractical requiring PASS removal for offsite treatment, PASS will be removed and transported to a dedicated bunded treatment pad located within the WBRA for subsequent lime treatment, in accordance with the Project ASSMP • Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Other corrective actions contained in the Project ASSMP

19.3 Air quality, noise, vibration and lighting

19.3.1 Dust and emissions

The potential Project air quality impacts relevant to the Project EPBC Act controlled action approval protected matters include:

- Dust from construction activities covers foreshore vegetation resulting in a loss or reduction in vegetation condition

The Project bund wall construction activities are isolated and away from any dust sensitive places. Commercial places present in the area are industrial and located at a distance greater than 500m from the Project construction area.

Presence of migratory shorebirds are observed in the WBRA during the migration periods. However previous monitoring has shown that migratory shorebirds that utilise the WBRA are not disturbed during construction activities (Wnorowski 2021).

The overall process and procedures for preventive management of potential Project air quality impacts relevant to the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project air quality impacts on the Project EPBC Act controlled action approval protected matters are avoided and/or minimised
Objectives	• To minimise dust from construction activities that has the potential to cover foreshore vegetation • To minimise dust from construction activities to achieve no environmental nuisance at a sensitive place or commercial place as defined in the Project ERA16 EA
Performance criteria and indicators	• No loss of foreshore vegetation from Project-related dust emissions • No exceedances of the air quality monitoring thresholds within the Project Air Quality Management Plan (#1926946) (AQMP) • No air quality Project-related complaints resulting in an exceedance of the monitoring thresholds contained in the Project AQMP

Mitigation and management measures	• Despite the low risk to generate fugitive dust and/or particulate emissions, which have the potential to impact any sensitive places, an Air Quality Management Plan will be implemented prior to the commencement of the activity (#1926946) • Implement the Project AQMP (refer Appendix 4), including the following key management measures: - Applying effective dust control measures inclusive of water truck to dampen traffic areas as required to prevent dust drift from the construction footprint - Stage works to limit disturbance to exposed material (potential dust sources) while progressively stabilising areas where practical - Travel speeds restricted to 40 km/h • Implement the Project Erosion and Sediment Control Plan and Project TMP, which includes the following key mitigation measures: - Roadways are regularly watered and graded and maintained to control dust generated from vehicle traffic on site - Road surfaces maintained by in-filling and resurfacing, where required - Obstacles and debris immediately cleared from the road - Roadways inspected for any cracking, sinking or slippages, including during and after periods of heavy rain events - More frequent inspections and maintenance during periods of heavy rain events - Installing and maintaining erosion and sediment control measures to prevent mud build-up on designated roads and limit dust emissions from vehicles travelling at speed.
Early warning trigger levels	• The Project AQMP Trigger Action Response Plan (TARP) Level 1 visual dust lift off within the Project site boundaries in the immediate area of the Project activities (refer Appendix 4)
Risk management and adaptive management	• Implement the Project AQMP TARP for adaptive management to occur (refer Appendix 4)
Corrective actions and emergency response measures	• Implement the air quality adaptive management measures outlined in the Project AQMP (refer Appendix 4) • Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.3.2 Noise and vibration

The potential Project noise and vibration impacts relevant to the Project EPBC Act controlled action approval protected matters include:

- Temporary increase noise and vibration levels results in temporary displacement of foraging shorebirds, migratory seabirds, Eastern curlews and/or other native fauna species

The Project activity will involve handling, transport and depositing of rock. The Project bund wall construction activities are isolated and away from any noise and vibration sensitive places. Commercial places present in the area are industrial and located at a distance greater than 500m from the Project construction area. No piling works are to be conducted under this Project.

Presence of migratory shorebirds are observed in the WBRA during the migration periods. However previous monitoring has shown that migratory shorebirds that utilise the WBRA are not disturbed during construction activities (Wnorowski 2021).

Friend Point has been identified as a roosting habitat for shorebirds and is located approximately 2km from Project construction activities. Noise from Project activities are not expected to disturb roosting shorebirds.

The overall process and procedures for preventive management of potential Project noise and vibration impacts relevant to the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	Project noise and vibration impacts on the Project EPBC Act controlled action approval protected matters are avoided and/or minimised
Objectives	• To minimise displacement of marine megafauna, marine turtles, foraging shorebirds, migratory seabirds and/or Eastern curlews, and other native fauna during the placement of rock and other construction activities • To minimise noise and vibration from construction activities to achieve no environmental nuisance at a sensitive place or commercial place as defined in the Project ERA16 EA
Performance criteria and indicators	• No Project-related noise and/or vibration incidents reported as part of the implementation of the Project Eastern curlew and other shorebird monitoring program • No noise and/or vibration complaints or related incidents
Mitigation and management measures	• Project construction activities will occur during standard day time hours (6.30am to 6.30pm, Monday to Saturday) • Adjust reversing alarms on plant to limit the acoustic range to the immediate operational area, within the safety compliance requirements • Select appropriate and fit-for-purpose plant and equipment, and operate as per manufactures recommendations • Regular maintenance of plant and equipment • Equipment which is used intermittently is to be shut down when not in use, and all engine covers are to be kept closed while equipment is operating • During site inductions and toolbox talks, brief site workers (including subcontractors and temporary workforce) on hours of construction and how to minimise noise and vibration when undertaking activities, to raise awareness of the Project EPBC Act controlled action approval protected matters (e.g. Eastern curlew and other migratory shorebirds) and the importance of minimising noise and vibration emissions • All equipment will be turned off when not in use • Implement the Project Eastern curlew and other shorebird monitoring program (refer REMP Section 8.7). If during monitoring activities any incidents of disturbance to Eastern curlew due to Project activities are observed, the incident will be reported to GPC within 24 hours. If an incident is a result of Project-related activities the following noise and vibration adaptive management measures will be implemented: - Reduction in rock placement rates at any of the two (2) placement locations with efforts being redirected as appropriate - Progress with construction at one work front which provides the maximum buffer distance, and/or - Working on the higher bund wall lift areas which provides the maximum buffer distance. • A shorebird monitoring program will be implemented to assess any impacts on the shorebirds.

Early warning trigger levels	• Project-related noise and vibration experienced by ecologists undertaking the Project Eastern curlew and other shorebird monitoring program (refer REMP Section 8.7)
Corrective actions and emergency response measures	• Implement the noise and vibration adaptive management measures above • Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • In accordance with ERA16 EA condition N2, when requested by the administering authority, noise monitoring must be undertaken within a reasonable and practical timeframe nominated by the administering authority at any sensitive place or commercial place, and results of the monitoring results must be submitted to the administering authority within 14 days following completion of monitoring

19.3.3 Lighting

All activities will be conducted during daylight hours. There will be no artificial light from the Project that will disrupt wildlife within, or displace wildlife from, important habitat areas. Therefore, the bund wall construction activities will not trigger the *National Light Pollution Guidelines for Wildlife,* including marine turtles, seabirds and migratory shorebirds (January 2020).

Maritime Safety Queensland (MSQ) will assess the risk of navigational hazards during construction of the bund wall, and may install buoys along the harbour facing bund wall. The lighting to be used for this will be compliant with the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), and is unlikely to trigger the Light Pollution Guidelines for Wildlife, as required under the Project EPBC Act controlled action condition 22(f).

19.4 Cultural heritage

19.4.1 First Nations' cultural heritage

An Indigenous Land Use Agreement (ILUA) is in place between GPC and the Port Curtis Coral Coast (PCCC) ative Title claimant group and the State of Queensland. In addition to this ILUA, a Cultural Heritage Protocol (the Protocol) was entered into by the ILUA parties on 23 March 2014, to ensure the protection and management of all First Nations' cultural heritage in the ILUA area in relation to all port-related operations (proposed or undertaken).

In accordance with the Protocol, surveys of the area were conducted as part of the EIS process in consultation with PCCC representatives. During these surveys PCCC representatives highlighted the fact that the Project impact areas must be viewed in the context of the larger, surrounding area and other known sites (including quarries and stone sources, artefact scatters and resource areas), which hold high levels of cultural significance.

As per the NLEP Communications and Stakeholder Engagement Plan (CSEP), GGCCDP engagement with local First Nations People is ongoing. First Nations representatives were involved in the 2013-19 GGCCDP EIS engagement and consultation, including through the Stakeholder Representative Group (SRG) and direct input into the development of the Aboriginal Cultural Heritage Report. The primary mechanism for ongoing engagement and consultation is through the GPC PCCC Relationship Committee. This includes 2024 NLEP Environmental Management Plan (EMP) consultation with PCCC representatives. To meet GPC GGCCDP EIS commitments, there is ongoing engagement with First Nations People in accordance with the Cultural Heritage Protocol. As per the procedures in the Protocol, if an unknown item of tangible cultural heritage is uncovered during construction, work will cease

until First Nations representatives are consulted. PCCC representatives are invited to be involved with the implementation of the EMPs. There will also be re-engagement with members of the SRG.

For details, the NLEP CSEP will be published on www.gpcl.com.au/news-and-resources/resources/

There are no known cultural heritage sites in the direct footprint of the construction. However, the area near NLEP SRA has multiple cultural heritage locations (Figure 3).

Figure 3: Cultural heritage sites near the Project area

19.4.2 Non-First Nations cultural heritage (includes shipwreck heritage)

No State Heritage places are listed in the Queensland Heritage Register within the NLEP SRA footprint.

There are no known historic shipwrecks in the area.

The overall process and procedures for preventive management of potential Project impacts on First Nations and non-First Nations' cultural heritage items (including shipwrecks) are summarised below.

Environmental outcomes	• Project impacts on First Nations and non-First Nations' heritage items/areas are avoided

Objective	• To ensure First Nations and non-First Nations' heritage items/areas are not impacted by Project activities
Performance criteria and indicators	• All works associated with the Project are conducted within the Project footprint • No heritage complaints or incidents associated with Project works
Mitigation and management measures	• Training by local First Nations people on cultural heritage artefacts recognition prior to commencing works • All works will remain within the approved NLEP SRA footprint • Continuous visual observations of the work front • Should an item or object of potential or suspected cultural heritage (First Nations, early settler or shipwreck) significance be found during Project activities, GPC will stop work until it is verified by a suitably-qualified person as a cultural heritage find • GPC will implement the New Discoveries provision for incidental finds of First Nations cultural heritage found during Project activities, provided in Section 10.2 of the Cultural Heritage Protocol, including the following: - All work at the location of the potential find should be ceased and the contractor will notify GPC's Project Manager - GPC's Environmental Advisor will undertake appropriate actions and provide management recommendations to the contractor. • Notification on any non-First Nations cultural heritage finds to GPC Project Manager • Regular updates on the implementation of the CEMP will be provided during GPC's engagement sessions with First Nations representatives, which include recurring Relationship Committee meetings
Early warning trigger levels	• An item or object of potential or suspected cultural heritage (First Nations, early settler or shipwreck) significance is found during Project activities
Risk management and adaptive management	• Implement the Cultural Heritage Protocol monitoring and management requirements
Corrective actions and emergency response measures	• Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.5 Flora, fauna and water quality

As outlined in Table 7, the potential Project impacts relevant to the Project EPBC Act controlled action flora, fauna and water quality protected matters include:

- Direct removal of seagrass and macroalgae from the construction of the NLEP SRA outer bund wall
- Increase in turbidity at coral reef locations within the Port of Gladstone results in decrease in coral reef health
- Decrease in water quality at coral reefs within the Port of Gladstone results in decrease in coral reef health from low pH from disturbance of acid sulfate soils, Project equipment leaks or spills into marine waters and/or Project release of hazardous substances and/or waste

- Increase in turbidity for marine waters within the Port of Gladstone

- Decrease in marine water quality within the Port of Gladstone from low pH from disturbance of acid sulfate soils, Project equipment leaks or spills into marine waters and/or Project release of hazardous substances and/or waste

- Increase in fine-grained sediment within marine waters of the GBRWHA

- Loss or decrease in seagrass and macroalgae health and associated dugong, dolphin and/or marine turtle habitat from increase in turbidity and/or sedimentation at seagrass and macroalgae areas outside of the Project direct impact area

- Loss or decrease in seagrass and macroalgae health and associated dugong, dolphin and/or marine turtle habitat from Project release of hazardous substances, waste and/or Project vehicle leaks or spills at seagrass and macroalgae areas outside of the Project direct impact area

- Loss of seagrass and macoalgae and associated dugong, dolphin and/or marine turtle habitat from indirect hydrodynamic impacts caused by the establishment of the NLEP SRA

- Loss of potential shorebird, including Eastern curlew foraging habitat (intertidal areas adjacent to the NLEP SRA) from hydrodynamic impacts caused by the closure of the bund wall and establishment of the NLEP SRA

- Temporary displacement of marine megafauna and/or marine turtles during the placement of rock within intertidal and marine waters

- Injury, mortality, entrapment or standing of dugongs, dolphins and/or marine turtles during construction of the bund wall or during bund closure

- Injury or mortality of dugongs and/or dolphins due to Project release of hazardous substances and/or waste

- Injury or death of shorebirds, migratory seabirds and/or Eastern curlews from construction equipment and/or placement of rock

- Temporary increase noise, vibration and/or light levels results in temporary displacement of foraging shorebirds, migratory seabirds, Eastern curlews and/or other native fauna species

- Dust from construction activities covers foreshore vegetation resulting in a loss or reduction in vegetation condition.

No impacts are envisaged to foreshore marine plants and terrestrial vegetation and associated fauna habitat (e.g. Water mouse). However, a significant impact assessment will be undertaken post construction to determine if a significant residual impact is likely from the Project, in accordance with the Project EPBC Act controlled action condition 19(b) (refer NLEP SRA Project Stage 1 Offset Strategy).

The overall process and procedures for preventive management of impacts on flora, fauna and water quality Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project indirect impacts to protected matters are avoided and/or minimised • Where significant residual impacts occur, offsets will be provided in accordance with the Project EPBC Act controlled action approval
Objectives	• To avoid loss of coral reefs, seagrass and macroalgae, and associated dugong, dolphin, marine turtles and Eastern curlew foraging habitat outside of the Project direct impact area from Project-related increases in turbidity and/or sedimentation • To minimise loss of seagrass and macroalgae, and associated dugong, dolphin, marine turtles and Eastern curlew foraging habitat outside of the Project direct impact area from hydrodynamic impacts caused by the closure of the bund wall and establishment of the NLEP SRA • To maintain the pH levels within the natural range in marine waters during Project activities • To minimise the marine water quality impacts from Project construction activities • To minimise Project generated FGS within marine waters of the GBRWHA • To minimise displacement of marine megafauna, marine turtles, foraging shorebirds, migratory seabirds and/or Eastern curlews, and other native fauna during the placement of rock and other construction activities • To avoid the injury, mortality, entrapment or standing of dugongs, dolphins and marine turtles during construction of the bund wall or during bund closure • Minimise the injury, mortality, entrapment or standing of other marine species (e.g. fish) during construction of the bund wall or during bund closure
Performance criteria and indicators	• Bund wall rock material will only be placed within the Project EPBC Act approved direct disturbance footprint • No removal of terrestrial and intertidal vegetation outside of the Project EPBC Act approved direct disturbance footprint • Project direct impact to remove, destruct or damage no more than 41.77ha of seagrass and 0.64ha of marine algae in accordance with the NLEP SRA Development Permit approval conditions (DA2022/10/01) • The implementation of EWMA adaptive management measures results in the Project-related turbidity levels returning to below the EWMA External Alert Level 2 (refer REMP Section 9.2.3) • The implementation of EWMA adaptive management measures results in the Project-related BPAR levels returning to below the BPAR Alert Level 3 (refer REMP Section 9.3.5) • No change in pH levels in marine waters due to Project activities • No Project equipment and/or vehicle leaks or spills into marine waters • Avoid indirect impact loss from Project-related turbidity of seagrass and macroalgae areas outside of the Project direct impact area • No dugong, dolphin and marine turtle injury or mortality is caused by Project-related activities • No loss of foreshore vegetation from Project-related dust emissions

	• No Project-related noise and/or vibration incidents reported as part of the implementation of the Project Eastern curlew and other shorebird monitoring program • No Project-generated weeds and pests observed within adjoining foreshore areas • No Project-related weed and pest impacts on Project EPBC Act controlled action approval protected matters • No environmental harm is caused by introduction or spread of marine pest and/or weed species within and adjoining the Project area • No incidents or complaints received regarding waste generated by the Project which results in no loss to Project EPBC Act controlled action approval protected matters • There is no environmental impact on adjoining terrestrial and/or marine areas from waste, hazardous substances or Project vehicle leaks or spills
Mitigation and management measures	• Implement the following Project monitoring programs and plans: - Water quality monitoring program (refer REMP Section 8.1) - BPAR monitoring program (refer REMP Section 8.2) - Seagrass and macroalgae monitoring program (refer REMP Section 8.3) and hydrodynamic changes monitoring plan (refer REMP Section 8.9) to determine if the Project results in a significant residual impact to the seagrass and macroalgae (refer NLEP SRA Project Stage 1 Offset Strategy, Section 4.5) - Mangrove and saltmarsh monitoring program, including Water mouse monitoring program (refer REMP Section 8.4) to determine if the Project results in a significant residual impact to Water mouse habitat (refer NLEP SRA Project Stage 1 Offset Strategy, Section 6) - Aquatic Salvage Plan (approved by the Queensland Department of Agriculture and Fisheries (DAF)) - Eastern curlew and other shorebird monitoring program (refer REMP Section 8.7) and hydrodynamic changes monitoring plan (refer REMP Section 8.9) to determine if the Project results in a significant residual impact to Eastern curlew foraging habitat (refer NLEP SRA Project Stage 1 Offset Strategy, Section 3.7) - Bed level change monitoring and FGS validation monitoring program (refer REMP Sections 8.8 and 8.10) to determine the Project significant residual impact to FGS offset requirement (refer NLEP SRA Project Stage 1 Offset Strategy, Section 5) - NLEP SRA Bund Wall Integrity Monitoring Program (refer REMP Section 8.12). • If Project-related turbidity results in the seasonal EWMA Turbidity Internal Alert Level 1 to be exceeded for 36 consecutive hours or the seasonal EWMA External Alert Level 2 to be exceeded continuously for 24 hours the following EWMA adaptive management measures will be implemented: - Reduction in rock placement rates at any of the two (2) placement locations with efforts being redirected as appropriate - Progress of new work front only at low tide - Progress with construction at one work front, and/or - Working on the higher bund wall lift areas. The EWMA and BPAR adaptive management framework is detailed in Section 9 of the REMP. • Bund wall rock material will only be placed within the EPBC Act approved direct disturbance footprint using GPS equipment

- The construction stockpile areas will be located at the WBRA or other existing disturbed areas
- The maintenance and cleaning of any Project vessels, vehicles, plant or equipment will not be carried out where contaminants can be released into any receiving waters
- All Project plant and equipment will be maintained and operated in a proper, effective and efficient manner
- There will be no change, replacement, alteration or operation of any plant and equipment if the change, replacement, alteration or operation will increase, or is likely to substantially increase the risk of environmental harm during Project works
- If during the implementation of the NLEP SRA Bund Wall Integrity Monitoring Program visual inspections observe high turbidity in marine waters caused by rock placement, this information will be incorporated into the EWMA and BPAR adaptive management framework
- If an animal is injured during the Project construction activities, 13000 Animal needs to be called immediately. The incident to be recorded in GPC's incident management system.
- All personnel operating vehicles will be made aware of the potential to encounter native fauna, including EPBC Act threatened species and the Project EPBC Act controlled action approval protected matters within the Project direct and indirect impact areas
- No night works
- The Project waterway barrier(s) and any associated infrastructure are to be constructed and maintained to avoid fish injury, mortality and/or entrapment
- If a marine fauna species becomes stranded, within an area that has the potential to be impacted by Project activities, the Project Manager will be notified as soon as is practicable. Construction personnel will avoid contact with the stranded species. The contractor will make a record of the precise location of animal and the species type.
- Implement the Project Aquatic Salvage Plan, including the following key mitigation measures:
  - Remove as many fish as possible using appropriate nets
  - Lower the water level by 25% and remove as many fish as possible. Repeat at each subsequent 25% reduction. Removing fish at each reduction is important as overcrowding can result in a fish kill.
  - Fish handling, transportation, fish release and notification of a fish kill procedures to comply with DAF Fish Salvage Guidelines
- If the animal is alive, the Project Manager will contact the Marine Stranding Hotline (1300 130 372) and details of the animal will be provided. Construction activities within the immediate vicinity and any additional activities which have the potential to cause stress to the animal will cease until Queensland Parks and Wildlife Service (QPWS) staff can remove the animal.
- If the animal is dead, the GPC Project Manager will contact the Marine Stranding Hotline (1300 130 372), and details of the animal will be provided. Liaison with QPWS will occur to ensure the animal's remains are retrieved.
- In the case where a crocodile is identified within the Project direct impact area, the Project Manager will contact the Marine Stranding Hotline (1300 130 372). Under no circumstances will personnel approach the animal, whether it has been determined to be dead or alive.

	In the event of injury or mortality to native fauna, other than conservation significant species: - Organise the possible capture of the animal for transportation to a specialist veterinarian or wildlife carer. The animal must only be handled by a person suitably qualified to do so. The location of the injured animal will be identified/marked so it can be found again. - The species of animal will be identified, if possible, and its approximate size determined - The type of injury sustained will be identified, if possible (without handling or causing the animal further stress) - The cause of the incident will be investigated, and mitigation measures revised, if required to prevent a re-occurrence. Observations are to be made during the Project when fauna impacts are noticed (e.g. entrapment, stranding, injury, death). This will trigger incident reporting and the implementation of the relevant actions contained within the Project Aquatic Salvage Plan.
Early warning trigger levels	• EWMA Turbidity Internal Alert Level 1 (refer REMP Section 9.2.1) • BPAR Internal Alert Level 1 (refer REMP Section 9.3.1)
Risk management and adaptive management	• Implement the adaptive management framework included in Section 9 of the REMP • Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). If an increase in risk rating occurs, the CEMP and mitigation measures will be reviewed and amend to address the change in risk rating.
Corrective actions and emergency response measures	• Implement the EWMA adaptive management measures as detailed above • If an area of vegetation is incorrectly cleared, the relevant authorities will be notified immediately, to advise of the breach and to confirm measures to be implemented to address the non-conformance • If an individual plant species has been identified as a conservation significant species, or is suspected of being one, and is unintentionally uprooted during clearing operations, then the actions below will occur: - The relevant authorities will be notified immediately, and their advice implemented - If practicable, the uprooted specimen(s) will be replanted within 48 hours in an area marked as a 'no go' zone or rehabilitation area • Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.6 Bushfire

The Bushfire Response Plan (BRP) within this section applies to the construction of the NLEP SRA. It is noted that the Project does not occur within Bushfire Prone Areas (as defined by the Gladstone City Council town plan mapping overlay for bushfire prone areas).

The bushfire danger rating in areas adjacent to the NLEP SRA is regarded as 'minimal' with respect to measured and observed slope and 'medium' with respect to aspect.

Overall fuel loads in areas adjacent to the NLEP SRA are generally less than 9 t/ha representing generally light fuel loads, with an isolated area with a heavy fuel load of 18 t/ha recorded to the western extent of the NLEP SRA adjacent potential indirect impact area (Bonney et al. 2021). Fuel loads increase in a westerly direction, adjacent to the NLEP SRA.

The overall process of preventive management of the risk of bushfire can be summarised as follows.

Environmental outcomes	• Project-related bushfire impacts have no significant impact on Project EPBC Act controlled action approval protected matters
Objectives	• To minimise the risk of bushfire to the foreshore areas adjacent to the Project as a result of construction activities • To protect life, assets and ecosystems within and adjoining the construction area from the threat of bushfires • To ensure all personnel, subcontractors and visitors are aware of the bushfire risks associated with construction activities • To promote a positive reporting culture to minimise the occurrence and severity of bushfire incidents during construction activities
Performance criteria and indicators	• No avoidable harm or damage to humans and property is caused by bushfires during the course of construction activities • Bushfire protection actions are implemented and maintained • No avoidable contribution to fire via increase in fuel loads
Mitigation and management measures	• An onsite water truck fitted with a water tank and pump system capable of initial attack of spot fires • Potential water supply locations within vicinity of the NLEP SRA identified • Identify potential suitable fire breaks adjacent to the NLEP SRA. These may include several vehicle and animal tracks which are present in areas adjacent to the NLEP SRA, saltmarsh areas, waterways and a powerline easement which is present adjacent to the southern boundary of the WBRA. • Familiarisation of workers with this BRP, location of firefighting equipment and emergency response and evacuation procedures • Workers will report fires within and adjoining the area of the Project immediately to their supervisor, and 000 where required. Project personnel will also rely on detection and reporting of bushfires in the region by neighbours, Rural Fire Service alerts, and Gladstone Regional Council. • Workers will maintain strict housekeeping standards of construction and storage areas to reduce potential sources of flammable material • All vehicles travelling to and from site to exclusively use designated routes. This will provide safe access and egress for emergency service personnel and workers. • Smoking is to be limited to designated smoking areas only • Emergency evacuation points and procedures communicated to workers

	• In the event of a fire, the observer is to alert all bystanders and then attempt to extinguish the fire only if it is safe to do so. Senior personnel will assess the situation and decide whether to initiate evacuation procedures and contact emergency services.
Early warning trigger levels	• Bushfire risk levels within the Gladstone region
Risk management and adaptive management	• GPC Project staff to liaise regularly with Rural Fire Service and Gladstone Regional Council during the high-risk bushfire season
Corrective actions and emergency response measures	• Implement actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019) • Review of BRP and amendment (if required) if a bushfire occurs within 20km of the NLEP SRA

19.7 Pests and weeds

Biosecurity Queensland is responsible for managing known pests in Queensland and GPC has obligations and responsibilities to Biosecurity Queensland under the *Biosecurity Act 2014* (Qld) (Biosecurity Act).

A few animal pest species in the survey areas were observed (e.g. rabbits, pigs, cane toads, foxes, and dogs). Weeds of National Significance species were recorded within the NLEP SRA adjacent survey area. Restricted matters that were recorded in all areas included lantana, rubber vine, and one (1) individual plant of groundsel. Prickly pear also occurs throughout the area, though all specimens showed evidence of biological control. The main weeds recorded in the survey area adjacent to the NLEP SRA were lantana and rubber vine, with patches of balloon cotton and Brazilian snake weed.

The potential Project pest and weed impacts relevant to the Project EPBC Act controlled action approval, include the risk of introduction and spread of the pests and/or weeds within and adjoining the NLEP SRA activity footprint which reduces the value of protected matters.

The overall process and procedures for preventive management of potential Project pest and weed impacts relevant to the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project pest and weed impacts on the Project EPBC Act controlled action approval protected matters are avoided and/or minimised
Objectives	• To comply with the relevant statutory provisions regarding pest and weed management, in particular, the Biosecurity Act and other biosecurity obligations relating to land management • To minimise the potential for environmental harm caused by the proliferation of invasive species (i.e. pests, weeds, and invasive ants), particularly those that are classified as prohibited matter, or restricted matter, under the provisions of the Biosecurity Act
Performance criteria and indicators	• No Project-generated weeds and pests observed within adjoining foreshore areas • No Project-related weed and pest impacts on Project EPBC Act controlled action approval protected matters • No environmental harm is caused by introduction or spread of marine pest and/or weed species within and adjoining the Project area

Mitigation and management measures	• Quarterly inspections will occur within the terrestrial foreshore areas adjacent to the NLEP SRA to identify and record any sightings of pest fauna species. Appropriate mitigation measures will be developed and implemented for pest fauna species, to avoid and/or minimise potential impacts on native fauna species and their habitats (e.g. migratory shorebirds and roosting/foraging habitat). • Any sightings of any pest species will be logged and reported • Vehicle movement will be restricted to existing roads under the Project TMP • Tracked equipment will be checked for weed seed prior to entering the construction area • Works to be undertaken by a site fleet • The use of herbicides and pesticides within and adjacent to intertidal/marine areas and drainage lines will be avoided and/or minimised. Products that are specifically formulated for use in environmentally sensitive areas will be used in these locations where required. In the event that any Category 1 and /or Category 2 pest or weed infestations are detected during the construction phase, these actions will be implemented: • Liaison and collaboration with DPI will occur, where required, to identify and implement appropriate actions to the pest/weed infestation • Where Category 1 or Category 2 restricted matter (as defined under the Biosecurity Act) is detected (including red imported fire ant), Biosecurity Queensland will be contacted within 24 hours of its detection • An appropriate weed and/or pest management strategy will be used/implemented to treat the infestation • The cause of the pest and/or weed introduction/proliferation will be investigated, and mitigation measures will be revised, if required, to prevent a re-occurrence • Continual monitoring of the infested area will occur until the infestation is controlled • Incidents resulting in a significant spread of weeds and/or pests will be reported to the GPC Project Manager, and the appropriate regulatory agency (e.g. DCCEEW and/or DPI).
Early warning trigger levels	• Quarterly inspections within the terrestrial foreshore areas adjacent to the NLEP SRA
Risk management and adaptive management	• Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). If an increase in risk rating occurs for pests and weeds, the CEMP and mitigation measures will be reviewed and amend to address the change in risk rating.
Corrective actions and emergency response measures	• Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.8 Hazardous substance and waste

The waste expected to be produced during Project activities includes waste oils and lubricants, and any other construction waste.

The potential Project release of hazardous substances and/or waste has the potential to impact the following the Project's EPBC Act controlled action approval protected matters:

- Decrease in water quality at coral reefs within the Port of Gladstone results in decrease in coral reef health
- Decrease in marine water quality within the Port of Gladstone
- Loss or decrease in seagrass and macroalgae health and associated dugong, dolphin and/or marine turtle habitat
- Injury or mortality of dugongs, dolphins and/or marine turtles due to Project release of hazardous substances and/or waste.

The overall process and procedures for preventive management of hazardous substance and/or waste impacts on the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project hazardous substances and waste impacts to Project EPBC Act controlled action approval protected matters are avoided
Objectives	• To minimise the amount of Project waste generated • To ensure no waste is released into the environment • To ensure best practice management is adopted for the handling, storage and disposal of all waste materials • To manage wastes and clean up spills to prevent loss of Project EPBC Act controlled action approval protected matters
Performance criteria and indicators	• No incidents or complaints received regarding waste generated by the Project which results in no loss in the Project EPBC Act controlled action approval protected matters • There is no environmental impact on adjoining terrestrial and/or marine areas from waste or hazardous substances • Correct storage, transport and disposal of waste products, including tracking for regulated wastes
Mitigation and management measures	• Daily equipment pre-starts will be undertaken for the duration of the NLEP SRA construction activities • All waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste • Incompatible wastes must not be mixed in the same container or waste storage area • Waste management strategies will include procedures for collection, handling, transport of waste material • No hazardous or potentially hazardous waste will be generated by the Project activity • Regulated wastes will be contained and controlled in a manner that prevents loss of Project EPBC Act controlled action approval protected matters • Absorbent material used to clean up hydrocarbon spills will be stored in an appropriate container

	• Appropriate waste collection will be present onsite throughout construction to maintain segregation and maximise economic reuse and recycling • All sewage and greywater will be temporarily stored onsite in accordance with the relevant waste management legislation and guidelines, and removed and transported to a licenced sewage treatment plant by a licenced waste management contractor • Incompatible wastes must not be mixed in the same container or waste storage area • Refuelling will occur using a service truck and no bulk storage of fuel will occur in the Project area • Refuelling of wheeled equipment will not be conducted on the bund wall. Project vehicles, plant and equipment will be refuelled off the bund wall. • No major maintenance work to plant or machinery will occur onsite • Sufficient spill response equipment (e.g. spill kits) and personnel spill response training to respond effectively to the most likely type and size of spills to occur will be maintained onsite • Key personnel will be provided mandatory training in Spill Response • No hydrocarbon storage will occur onsite • If any chemicals greater than 15L are stored, then secondary containment will occur • Ensure the seabed is clear of any foreign materials at the end of the Project • Regular inspections of the waste disposal facilities will occur • Internal and third party audits will occur
Early warning trigger levels	• Daily visual inspections to identify hazardous substance and/or waste issues onsite
Risk management and adaptive management	• Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). If an increase in risk rating occurs in relation to hazardous substances and/or waste, the CEMP and mitigation measures will be reviewed and amend to address the change in risk rating.
Corrective action/s	• In the event of an oil or fuel spill, refer to the GPC 'Spill Response Instruction (#1121965) • In the event of a spill to marine or intertidal environments, first-strike response will be in accordance with the MSQ First-strike Oil Response Plan (#1568522) • Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.9 Erosion and sediment control and stormwater management

The construction of the NLEP SRA will be made from crushed rock and no catchments for collecting water exists, so stormwater management requirement during construction activities will be negligible and it will flow back into the tidal system. Once the bund is closed, walls will be graded to direct stormwater to the inside of the bunded area where any sediment can settle and will be captured as the water flows through the rock-based bund wall structure.

An Erosion and Sediment Control Plan (ESCP) has been prepared for the Project. The ESCP designs has been developed in accordance with the International Erosion Control Association and Gladstone Regional Council Development Guidelines.

The ESCP demonstrates that stormwater leaving the site is of a compliant standard for the appropriate design storm, and minimised when that design storm is exceeded.

As outlined in Table 7, the potential Project water quality impacts relevant to the Project EPBC Act controlled action approval protected matters include:

- Increase in turbidity at coral reef locations within the Port of Gladstone results in decrease in coral reef health
- Increase in turbidity for marine waters within the Port of Gladstone
- Loss or decrease in seagrass and macroalgae health and associated dugong, dolphin and/or marine turtle habitat from increase in turbidity and/or sedimentation at seagrass and macroalgae areas outside of the Project direct impact area.

The overall process and procedures for preventive management of potential impacts from erosion, sediment control and stormwater on the Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project erosion and water quality impacts on the Project EPBC Act controlled action approval protected matters are avoided and/or minimised
Objectives	• To avoid loss of coral reefs, seagrass and macroalgae, and associated dugong, dolphin, marine turtles and Eastern curlew foraging habitat outside of the Project direct impact area from Project-related increases in turbidity and/or sedimentation • To minimise the marine water quality impacts from Project construction activities • To not release any contaminants not authorised by the Project approval conditions
Performance criteria and indicators	• The implementation of EWMA adaptive management measures results in the Project-related turbidity levels returning to below the EWMA External Alert Level 2 (refer REMP Section 9.2.3) • The implementation of EWMA adaptive management measures results in the Project-related BPAR levels returning to below the BPAR Alert Level 3 (refer REMP Section 9.3.5) • Avoid indirect impact loss from Project-related turbidity of seagrass and macroalgae areas outside of the Project direct impact area • No visible erosion or sediment migration from the NLEP SRA outer bund wall and adjoining WBRA land used by vehicles transporting rock to the site

Mitigation and management measures	• Implement the Project ESCP which contains the following key mitigation measures: - Avoid unnecessary disturbance to seabed during new bund construction works - Restrict area of disturbance to as small an area as possible - Use of appropriate erosion control techniques to stabilise disturbed areas once the bund wall has achieved an appropriate profile - Site entry and exit points are to be limited to a minimal number, and appropriately stabilised to minimise sediment being washed off the Project site by stormwater and/or being tracked off by vehicles - Placement of wearing coarse and remainder of rip rap and rock reshaping berm to crest of NLEP SRA outer bund wall must ensure wearing course materials do not enter the receiving environment - Once bund wall closure has occurred, and prior to the placement of the top layer, an appropriately secured and continuous inner geofabric filter material will be installed on the bund wall inner face to reduce the passage of fines through the rock structure - Ensure any onsite stockpiles are located away from, overland flow paths, low points where ponding occurs, and steep slopes - Stockpiles to be monitored for fines - Stockpiling areas will be inspected, maintained, and managed during construction Monitoring and maintenance requirements for the erosion and sediment control measures are contained in the Project ESCP. • Construct the bund to the design to ensure correct slopes/drainage • Ensure final NLEP SRA outer bund wall land-form is stable
Early warning trigger levels	• EWMA Turbidity Internal Alert Level 1 (refer REMP Section 9.2.1) • BPAR Internal Alert Level 1 (refer REMP Section 9.3.1)
Risk management and adaptive management	• Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). • If an increase in risk rating occurs in relation to erosion and sediment control, the CEMP and mitigation measures will be reviewed and amended to address the change in risk rating
Corrective actions and emergency response measures	• Re-establish erosion and sediment control structures if they have failed • Re-evaluate implementation of the erosion and sediment control measures in accordance with the International Erosion Control Association 'Best Practice Erosion and Sediment Control' (2008) guidelines, and on advice from a suitably qualified person • Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.10 Traffic considerations

Heavy vehicles will be used in the Project area. There will be some light vehicles that may enter this area from time to time during Project construction.

The potential Project vehicle movement impacts relevant to the Project EPBC Act controlled action approval protected matters and personnel safety include:

- Decrease in marine water quality within the Port of Gladstone from Project vehicle leaks or spills into marine waters
- Loss or decrease in seagrass and macroalgae health and associated dugong, dolphin and/or marine turtle habitat from Project vehicle leaks or spills at seagrass and macroalgae areas outside of the Project direct impact area
- Potential vehicle interaction along the haul roads
- Vehicle roll over leading to vehicle damage and injury to personnel during construction activities.

The overall process and procedures for preventive management of potential impacts from Project traffic of (heavy) vehicles on Project EPBC Act controlled action approval protected matters are provided below.

Environmental outcomes	• Project traffic or heavy vehicles impacts on the Project EPBC Act controlled action approval protected matters are avoided and/or minimised
Objectives	• To clearly define the requirements for management of traffic flow, interaction of vehicles and interaction between vehicles and pedestrians within Project area • To eliminate traffic hazards • To reduce the number of traffic related incidents • To minimise the marine water quality impacts from Project vehicle movements
Performance criteria and indicators	• No Project vehicle leaks or spills into marine waters • There is no environmental impact on adjoining terrestrial and/or marine areas from Project vehicle leaks or spills • No traffic related incident during the Project • No injury to project personnel resulting from traffic related incident
Mitigation and management measures	• Implement the Project TMP, which includes the following key mitigation measures: - Allocation of designated parking areas for light vehicles and mobile plants - Ensure two-way traffic path widths are sufficient to allow two (2) heavy vehicles to pass safely. Each lane of travel provides clearance, left and right of the widest vehicle in use. - Ensure one-way traffic paths widths accommodate the use of the widest vehicle - Clear signage on speed limits, radio communication channels are installed at strategic locations onsite - Regular maintenance activities are conducted onsite roadways • Routine review of the Project TMP and amendment (if required)

Early warning trigger levels	• Visual observations of petroleum hydrocarbons on the marine water surface from bund wall construction areas • Project-related elevated total petroleum hydrocarbon recordings at water quality monitoring locations
Risk management and adaptive management	• Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). • If an increase in risk rating occurs due to Project vehicle movements, the CEMP and mitigation measures will be reviewed and amend to address the change in risk rating
Corrective actions and emergency response measures	• Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019) • Update the Project TMP (if required)

19.11 Marine considerations

The activity includes encroaching on the marine area to build the NLEP SRA bund wall.

The placement of bund wall material in the intertidal and marine environment has the potential to impact on Port marine vessels or navigational aids.

The overall process and procedures for preventive management of the risks of potential impacts on marine traffic arising from construction-related activities that encroach on the marine area are provided below.

Environmental outcomes	• Project activities do not impact on Port vessel movements and navigational aids
Objective	• To manage marine traffic risks and not impact Port users
Performance criteria and indicators	• No Port vessel and navigational aid impacts from the Project
Mitigation and management measures	• No night works will occur that could impact navigational aids • Temporary navigational aids may be installed by MSQ during the construction of the bund wall • Any site lighting used during construction works will not negatively impact on the visibility of navigational aids utilised for the primary shipping channels nor illuminate a landward glare beyond the site boundary • Lighting will be continually reviewed during construction and operations with respect to navigation and will be revised as required in response to negative impacts as they arise
Risk management and adaptive management	• Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). • If an increase in risk rating occurs in relation to Project vessel interactions or changes to navigational aids, the CEMP and

	mitigation measures will be reviewed and amend to address the change in risk rating.
Corrective actions and emergency response measures	• Implement actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019)

19.12 Fit for purpose

Once constructed the bund wall needs to be fit-for-purpose to accept dredge sediments and be stable to ensure no failure or integrity issues, including in case of extreme weather event.

The potential impacts of not constructing the NLEP SRA outer bund wall to comply with the detailed design drawings, design criteria and specifications include:

- Catastrophic failure of the outer bund wall
- Integrity issues with the outer bund wall (e.g. slumping, not operating as per design).

The overall management to deliver the NLEP SRA outer bund wall that is fit-for-purpose and stable to ensure no failure or integrity issues is summarised below.

Environmental outcomes	• The completed NELP SRA outer bund wall is available to accept dredged material with no failure or integrity issues
Objective	• To build the NLEP SRA outer bund wall to the detailed design drawings, design criteria and specification
Performance criteria and indicators	• Compliance with the detailed design drawings, design criteria and specification
Mitigation and management measures	• Provide georeferenced plan prior to construction • To use only uncontaminated material in construction • Follow civil construction methodology, which was designed to Australian Standards and RPEQ approved, with independent design verification • Proactively prevent any displacement of bank or tidal structure • Do not deposit material outside approved disturbance footprint • Repair any damage to structures • To reinstate the WBRA land to the same condition/profile as prior to works • Obtain RPEQ certification of as built/constructed structure and provide evidence to regulators • Routine review of construction progress and identify any build issues as they arise for rectification • Implement the NLEP SRA Bund Wall Integrity Monitoring Program (refer REMP Section 8.12)
Risk management and adaptive management	• Any changes to the Project design will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). If an increase in risk rating occurs as a result of a design change, the CEMP and mitigation measures will be reviewed and amend to address the change in risk rating.

Corrective actions and emergency response measures	• Implement actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks • Implement the GPC Emergency Management Plan (#1494019) • Review the NLEP SRA Bund Wall Integrity Monitoring Plan and amend (if required)

19.13 Social

Major projects (such as the construction of the NLEP SRA outer bund wall) tend to have a high level of social scrutiny. Therefore, the construction activities will be proactively managed to ensure good environmental, financial and social outcomes.

Potential Project social impacts include:

- If not well managed, there could be a disconnect between the community and the Project
- Changes to landscape character and visual amenity
- Impact on access and usage of the marine environment (including for commercial and recreational fishing).

The overall process and procedures for preventive management of potential social impacts are summarised below.

Environmental outcomes	• Project environmental and social impacts are avoided and/or minimised
Objective	• To maintain GPC's social licence to operate
Performance criteria and indicators	• No justifiable community complaints (which are neither frivolous nor vexatious nor based on mistaken belief) received during the Project construction phase
Mitigation and management measures	• Implement the Social Impact Management Plan • Implement the Communications and Stakeholder Engagement Plan
Risk management and adaptive management	• Any changes to the Project construction methodology, plant and/or equipment will be addressed in accordance with the GPC Risk Management Policy and Risk Management Standard (#829152) and recorded in the Environmental Risk Assessment for the Project (#1897800). If an increase in risk rating occurs in relation to social impacts, the CEMP and mitigation measures will be reviewed and amend to address the change in risk rating.
Corrective actions and emergency response measures	• Implement to actions contained in Section 12 Complaints and Section 13 Environmental non-compliances and incidents • Communications with workers on complaints and incidents in toolbox talks. Implement relevant actions in Table 6.1 of the Social Impact Management Plan

20 References

Independent Review of the Bund Wall at the Port of Gladstone Report on Findings – April 2014

Southern Reclamation Area Construction Fine-Grained Sediment Monitoring Plan – BMT 2024(a)

Priority Port of Gladstone Master Planning – 2018

Southern Reclamation Area – Hydrodynamic Changes Monitoring Plan – BMT 2024(b)

Wnorowski. T (2021) Assessing the Impact of Reclamation Activities on Migratory Shorebirds at the Western Basin Reclamation Area – Report prepared for Gladstone Ports Corporation

Appendices

Appendix 1 – Technical input for the preparation and future further development of the CEMP

Document	Technical input	Company/individual
NLEP SRA CEMP	Seagrass and macroalgae	TROPWATER James Cook University – Professor Michael Rasheed and Dr Tim Smith
	Foreshore animal breeding places	Central Queensland University (CQU) – Gidarjil Rangers and Dr Amie Anastasi
	Foreshore and bund wall material haul route pests and weeds	CQU – Gidarjil Rangers and Dr Amie Anastasi
	Mangrove and other foreshore marine plants	CQU – Gidarjil Rangers and Dr Amie Anastasi TROPWATER James Cook University – Dr Norman Duke and Dr Adam Canning
	Bushfire management	CQU – Nicole Boney
	Eastern curlew	University of Queensland – Professor Richard Fuller BAAM – Dr Penn Lloyd
	General flora and fauna	Aurecon – Dr Chris Schell Aurecon – Leesa Bignill
	Sediment quality and acid sulfate soils	Butler Partners – (Butler Partners 2020) Aurecon – Adam Anderson Aurecon – Georgina Kerr Gilbert and Sutherland-Erin Holton BMT- Dr Paul Guard Third Party Review: Port and Coastal Solutions – Dr Andy Symonds
	General CEMP	GPC – Anjana Singh GPC – Terese Tobin Aurecon – Stephen Cole Aurecon – Tiahne Ward Aurecon – Zoe Bishop-Kinlyside Aurecon – Gabby Singh Third Party Review by Dr Paul Erftemeijer
Acid Sulfate Soils Management Plan (ASSMP)	Acid sulfate soil (ASS) management	Aurecon – Adam Anderson Aurecon – Georgina Kerr Gilbert and Sutherland Erin Holton
REMP		GPC – Freddie Pastorelli Aurecon – Dr Chris Schell Aurecon – Stephen Cole Third Party Review by Dr Paul Erftemeijer
Fauna Salvage Plan		Bond University – Dr Daryl McPhee Elevate Media

Appendix 2 – Compliance with Approval Conditions pertaining to the CEMP

Approval	Condition No.	Details	Comments
DA2022/10/01			
	27	Prior to works commencing on site, a Construction Environmental Management Plan (CEMP) specific to this application and its associated works, is to be submitted to the Assessment Manager (GPC) for approval, that ensures:	A CEMP for the construction of the outer bund wall has been prepared.
		a. environmental risks, including but not limited to, noise, odour, stormwater, lighting, dust, hours of operation/works, waste and potential acid sulphate soils are identified, managed and continually assessed in relation to the construction activity	An environmental risk assessment for the Project has been completed.
		b. that Staff are trained, aware and competency assessed of their obligations under the CEMP, including a copy of the management plan and development approval available on site at all times	Works packs for operators have been developed. Training pertaining to key aspects of the CEMP will be provided to the operators.
		c) reviews of environmental performance are undertaken at least annually, and	An annual review of the CEMP will be conducted.
		d) any amendments to the CEMP are to be submitted to GPC for review and approval. Once approved by the Assessment Manager (GPC), the construction activity must be carried out in accordance with this CEMP.	GPC will resubmit the amended CEMP for re-approval if any changes in methodology leads to an increased environmental risk. Updates to the CEMP that are purely administrative in nature will require endorsement from the document owner.
Operational Work – Tidal Work (NLEP SRA Bund Wall)	2	The development must be carried out generally in accordance with the following documents: (a) Appendix J: Preliminary Construction Environmental Management Plan (b) Appendix N: Receiving Environment Monitoring Program (c) Appendix O: Acid Sulfate Soil Management Plan.	Since the submission of the Preliminary CEMP in April 2022, GPC has received updated construction methodology and has undertaken a detailed environmental risk assessment. This has resulted in updating certain sections of the CEMP. However, the general intent of the preliminary CEMP has still been maintained.
EPBC 2012/6558	20	The approval holder must submit to the Department a separate Project Environmental Management Plan (Project EMP) for each of Project Stage 1 and Project Stage 2	A CEMP for the construction of the outer bund wall has been prepared.

Approval	Condition No.	Details	Comments
		Each Project EMP must include: a. details of the design, materials, and methods, that meet best practice and/or recognised industry standards, to be used to construct any of the following if their construction is to be undertaken or altered as part of the Project Stage covered by the particular Project EMP: the barge unloading facility, the southern reclamation area and the northern reclamation area	Details are provided in Section 3.1 of this document.
		b. Clearly defined outcomes, objectives and performance criteria for protected matters and the results of baseline monitoring and/or surveys (as required under conditions 11-16) for any protected matters	Section 19 defines the outcomes, objectives and performance criteria for protected matters during construction of the NLEP SRA outer bund wall. The results of baseline monitoring and surveys are provided in Section 7 of the REMP. Future monitoring programs are included in Section 8 of the REMP.
		c. Specific and auditable mitigation and management measures to avoid and minimise impacts to protected matters during the construction and operation of the relevant Project stage, including for the placement of capital dredged material in the southern reclamation area and/or northern reclamation area, noise, dust, artificial light, controls, performance indicators, early-warning trigger levels, risk management, adaptive management strategies, corrective actions, and emergency response measures	The information is included in Section 19 of this document. Adaptive management framework is included Section 9 of the REMP. This CEMP does not include the placement of dredged material. A separate EMP will be submitted for approval prior to the placement of dredged material.
		d. measures to manage potential and actual acid sulfate soils	Included in Section 19.2 of this document and Chapter 5 of the Project ASSMP.
		e. measures suggested in the National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Commonwealth of Australia 2020, or subsequent current official version	Included in Section 19.3 (c) of this document.
		f. measures to maintain the integrity of the southern reclamation area and northern reclamation	This has been included in Section 7 of the NLEP SRA Bund Wall integrity Monitoring Program, and a summary of the key components of the Program are included in Section 8.12 of the REMP.

Approval	Condition No.	Details	Comments
		g. contingency plans should trigger levels be exceeded or undesirable or unforeseen impacts occur, including as a result of extreme weather events that may impact protected matters	This information is included in Section 15 of the CEMP. In addition, checks will be conducted in accordance with Section 7 (post cyclone/extreme weather events) of the NLEP SRA Bund Wall Integrity Monitoring Program. Erosion and sediment control inspections will be conducted in the case of post cyclone/extreme weather events.
		h. evidence of the involvement of scientific and technical experts in the development of the Project EMP(s), and procedures for the proposed involvement of scientific and technical experts in the further development of management actions	This has been included in Appendix 1 of this document.
		i. mechanisms for the regular review of the performance of the Project EMP in achieving its objectives to support continuous improvement;	Requirement of annual reviews have been included in Section 17.
		j. mechanisms for Indigenous stakeholder consultation on, and input into, the implementation of the Project EMP, and	First Nations representatives were actively consulted during the development of the Cultural Heritage Plan for the Gatcombe Golding Cutting Channel Duplication EIS. A consultation report on the NLEP SRA and the Environmental Management Plans have been shared with the First Nations representatives. Regular updates on the implementation of the CEMP will be provided during GPC's engagement sessions with First Nations representatives, which include recurring committee meetings.
		k. an outline of the governance structure, including roles and responsibilities, for implementing the Project EMP.	This information is included in Section 8 of the CEMP.
		21. Each Project EMP must be submitted to the Minister for approval, prior to the commencement of the Project Stage in respect of which it is submitted. Each Project EMP must be prepared in accordance with the Department's Environmental Management Plan Guidelines. The approval holder must not commence any Project Stage unless the Minister has approved the Project EMP for the relevant Project Stage. If the Minister approves the Project EMP for a Project stage, the approved Project EMP for that Project stage must be implemented.	The present CEMP shall be submitted to the Minister for approval prior to commencing implementation. The CEMP has been prepared in accordance with the Department's Environmental Management Pan's Guidelines.

Approval	Condition No.	Details	Comments
	56	Unless otherwise stated or agreed in writing by the Minister, each plan which requires the approval of the Minister must be peer reviewed by an independent suitably qualified person before submission to the Minister for approval.	Appendix 1 of the CEMP includes reference to Third Party reviewers.
	57	The reviews required under conditions 20, 22 and 24 must include an analysis of the effectiveness of the avoidance and mitigation measures in meeting the outcomes, targets or management measures proposed in the plan being reviewed.	Third Party review reports have been provided by the reviewer.
	58	Unless otherwise specified in these conditions or notified in writing by the Minister, the approval holder must provide to the Minister a copy of all advice and recommendations made by the independent peer reviewer(s) with the plan, and an explanation of how the advice and recommendations will be implemented, or an explanation of why the approval holder proposes not to implement certain recommendations of the independent peer reviewer(s).	Third Party review reports have been submitted to DCCEEW along with the original submissions.
	62	The approval holder must maintain accurate and complete compliance records.	All Project-related information will be saved in accordance with GPC's record keeping procedures.
	63	If the Department makes a request in writing, the approval holder must provide electronic copies of compliance records to the Department within the timeframe specified in the request.	Any compliance records as requested by the Department will be provided by GPC within the requested timeframe.
	64	The approval holder must: a. submit plans electronically to the Department; b. unless otherwise agreed to in writing by the Minister, publish each plan on its website within 20 business days of the date of: i. this approval, if the approved version of the plan is specified in these conditions, or	All plans will be published on GPC's website as required under this condition.

Approval	Condition No.	Details	Comments
		ii. the date a plan is submitted to the Department, if the plan does not require the approval of the Minister and is not finalised before the date of this approval, or iii. the date a plan has been approved by the Minister in writing, if the plan requires the approval of the Minister c. exclude or redact sensitive ecological data from plans published on the website or provided to a member of the public, and d. keep plans published on the website for the duration of this approval.	
	71	The approval holder may at any time, apply to the Minister for a variation to a management plan, program or strategy approved by the Minister by submitting an application in accordance with the requirements of Section 143A of the EPBC Act. If the Minister approves a revised management plan, program or strategy then, from the date specified, the approval holder must implement the revised management plan, program or strategy in place of the previous action management plan.	Amended management plans will be implemented after approval by the Minister.

Appendix 3 – EIS Commitments relevant to the CEMP

Description	Compliance response (must be specific on how compliance has been achieved)
A stockpile of armour material will be held by the quarry, sufficient to cover any exposed core material on the outer face if a cyclone were to approach Gladstone. The construction contractor will prepare an emergency plan which will include procedures to address severe climatic events such as cyclones and minimise where practicable, the potential environmental impacts from the reclamation works.	This commitment is included in Section 15 of the CEMP. GPC's Emergency Management Plan and Cyclone Preparedness and Response Plan will be enacted as needed.
The geotextile material will be non-woven and will generally comply with the specification or acceptable equivalent below: (a) Weight > 542g/m2(b) Tensile strength > 1,690Nindigen(c) Trapezoidal tear > 644N(d) Puncture resistance > 1,070N(e) Permittivity < 0.7sec-1(f) Apparent opening size < 0.150mm.	Geotextile specifications included in Section 3.1 of the CEMP
Solid waste will be temporarily stored onsite, in accordance with the relevant legislation and guidelines, and regularly collected by a licenced waste disposal contractor and, where recycling is not feasible, transferred to a licenced waste facility within the Gladstone Regional Council area.	Commitment included in Section 19.9 of the CEMP
All sewage and greywater will be temporarily stored onsite in accordance with the relevant waste management legislation and guidelines and removed and transported to a licenced sewage treatment plant by a licenced waste management contractor.	Commitment included in Section 19.9 of the CEMP
All waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste.	Commitment included in Section 19.9 of the CEMP
Incompatible wastes must not be mixed in the same container or waste storage area.	Commitment included in Section 19.9 of the CEMP
The Project site will be kept tidy at all times. Materials and machinery will be stored tidily during works and will be removed in a timely manner when no longer required. Roads providing access to the site and work areas will be maintained free of dust and mud as far as is reasonably practicable.	Commitment included in Section 19.3 of the CEMP
No major maintenance, servicing and re-fuelling of vehicles and equipment will be undertaken on the WB and WBE reclamation areas outer bund walls	Commitment included in Section 19.9 of the CEMP
Daily inspections of all plant and machinery will be conducted	Commitment included in Section 19.9 of the CEMP
Spill kits will be provided at the site, near where equipment is being used, and staff will be trained in the use of spill kits	Commitment included in Section 19.9 of the CEMP

Description	Compliance response (must be specific on how compliance has been achieved)
If a spill occurs, this will be cleaned up immediately with appropriately absorbent materials with the area remediated if required	Commitment included in Section 19.9 of the CEMP
Oils, fuels, chemicals and hazardous materials will be stored in clearly designated and appropriating bunded storage areas, located as far as practicable from marine waters. The storage areas will be covered to prevent stormwater infiltration.	Commitment included in Section 19.9 of the CEMP
Maximum unarmoured length of 50m will be maintained during construction to minimise potential erosion and water quality impacts from tidal flows and wave movements against the unarmoured outer bund walls	Commitment included in Section 3.1 of the CEMP
Sufficient armoured material will be held in reserve for placement in the event of a storm or approaching cyclone	Commitment included in Section 3.1 of the CEMP
GPC will report monitoring results to DAWE and DES as per permit requirements	Commitment included in Section 18 of the CEMP
Regular internal and external Third Party audits will be conducted for the duration of the Project works, to ensure that:(a) Mitigation measures are being implemented effectively(b) Relevant performance criteria is being achieved(c) Activities are compliant with regulatory and Project-specific requirements(d) Any non-conformances are recorded and appropriate corrective actions are implemented.	Commitment included in Section 11 of the CEMP
All records and associated permits will be provided to the relevant government regulator upon request and/or at the completion of Project activities	Commitment included in Section 14 of the CEMP
Complaints and incidents will be monitored throughout the Project activities, and corrective actions will be determined by the incident or complaint investigation	Commitment included in Section 12 of the CEMP
Maintenance and/or corrective actions will be scheduled as required for equipment issues	Commitment included in Section 19.9 of the CEMP
Weekly reports (as appropriate) will be completed for the duration of the Project activities	Weekly progress reports.by GPC, Earthworks and Contractors
Pre-start inspections on construction equipment to identify potential leaks	Commitment included in Section 19.9 of the CEMP
Emergency response procedure will be prepared prior to the commencement of construction as part of the environmental management plans and the GPC EMS	Commitment included in Section 15 of the CEMP
A non-compliance report will be filled out if any non-conformances are found	Commitment included in Section 13 of the CEMP

Description	Compliance response (must be specific on how compliance has been achieved)
In the event of an environmental incident, effective emergency response measures will be quickly implemented to ensure environmental harm for the event is minimised and feedback is issued to all parties involved in the works.	Commitment included in Section 13 of the CEMP
All vehicles and machinery will be visually inspected by an appropriately skilled person, prior to entering the Project impact areas.	Commitment included in Section 19.9 of the CEMP
All vehicles entering areas known to contain pest or weed species (high-risk areas) will be washed down prior to entering a low-risk area (i.e. areas free of pest or weed species).	Commitment included in Section 19.8 of the CEMP
Signs will be erected at entrance points, prompting the wash-down of all vehicles prior to entering low risk areas.	Vibration grids will be installed, the roads will be maintained with clean road base materials, graded and mud/dust suppression applied to avoid deposition of mud.
Regular inspections will occur within the terrestrial Project impact areas to identify and record any sightings of pest fauna species. Appropriate mitigation measures will be developed and implemented for pest fauna species to avoid and/or minimise potential impacts on native fauna species and their habitats (e.g. migratory shorebirds and roosting/foraging habitat).	Commitment included in Section 19.8 of the CEMP
Any sightings of any terrestrial pest fauna species will be maintained in a log and reported back to the Contractor's Environmental Manager	Commitment included in Section 19.8 of the CEMP
Soil and fill material from high-risk areas will not be transported to low-risk areas.	Not relevant for this project
All declared prohibited or restricted plant matter (as defined by the Biosecurity Act) detected within Project impact areas will be controlled in accordance with the specific herbicide application procedure/s, outlined in the PWMP.	Commitment included in Section 19.8 of the CEMP
Food scraps will be removed from the Project impact areas every day, so as to limit the potential for pest fauna species to enter Project impact areas.	Crib room facilities will be located outside of the Project footprint.
The use of herbicides and pesticides within and adjacent to intertidal/marine areas and drainage lines will be avoided and/or minimised. Products that are specifically formulated for use in environmentally sensitive areas will be used in these locations where required.	Commitment included in Section 19.8 of the CEMP
Major incidents resulting in a significant spread of weeds and/or pests will be reported to GPC, and the appropriate regulatory agency (e.g. DAWR, DES, MSQ)	Commitment included in Section 19.8.

Description	Compliance response (must be specific on how compliance has been achieved)
Note: The Department of Agriculture and Water Resources (DAWR) is now the Department of Primary Industries (DPI), and DES is now the Department of Environment, Tourism, Science and Innovation (DETSI).	
A Bushfire Management Plan will be developed and implemented and will include measures to minimise the risk of fire on areas of native vegetation.	Commitment included in Section 19.7
The Bushfire Management Plan will identify measures to minimise potential ignition sources associated with Project activities, including all earth-moving equipment to be fitted with flame arrestors.	Commitment included in Section 19.7
Where practical the construction compound and other laydown areas will be located within existing cleared and/or disturbed areas that are considered to be of low ecological value.	Lay down areas are within the existing cleared land of the Western Basin Reclamation Area (WBRA)
During pre-construction activities, all personnel operating vehicles will be made aware of the potential to encounter native fauna, including conservation significant species, and be trained in the implementation of the relevant mitigation measures including all requirements for reporting injured/trapped fauna.	Commitment included in Section 19.5
Hazardous substances with the potential to impact fauna and associated habitat will be stored within suitably contained and bunded areas within construction compounds, and located an appropriate distance from waterbodies and/or sensitive habitats.	Commitment included in Section 19.9
Reducing fuel consumption and the generation of emissions during the construction of the bund wall, including BUF construction by implementing the following measures: (a) Selection of fuel efficient machinery and vehicles, where possible, matched to the delivery requirements of quarry materials to the reclamation site (b) Appropriate equipment maintenance (c) Optimisation of transport of materials through load optimisation and delivery scheduling.	Included in Section 3.1 of the CEMP
Ongoing minimisation of diesel consumption during the earthworks on the reclamation site through equipment selection, maintenance and operational procedures.	Included in Section 19.9 of the CEMP
Wheel wash stations and/or vibration grids will be used at both ends of haul route from the quarry to the WBE reclamation area to reduce dust/mud deposition on public roads.	Vibration grids will be installed. And the roads will be maintained with clean road base materials, graded, and mud/dust suppression applied to avoid deposition of mud.

Description	Compliance response (must be specific on how compliance has been achieved)
Ensure that all employees are suitably trained to identify cultural heritage sites or objects and report the finds to the Contractor's Environment Officer (CEnvO) and maintain a log of all employees who have undergone cultural heritage training	Commitment included in Section 19.4 of the CEMP
Inform all employees of their obligations to notify the CEnvO of any cultural finds	Commitment included in Section 19.4 of the CEMP
Develop an accidental cultural heritage discovery reporting process and form that includes a clear chain of custody in the report (e.g. details of the person/s who made the discovery, date of discovery, description of discovery, location of discovery, etc). The reporting process is to include roles and responsibility regarding the handling and reporting of cultural heritage discoveries.	Commitment included in Section 19.4 of the CEMP
Engage an independent archaeologist for advice upon making a cultural heritage discovery	A cultural heritage discovery will be dealt with in accordance with GPC's Cultural Heritage Protocol (Section 19.4 of the CEMP)
Should an item or object of historical non-Aboriginal cultural heritage significance be found during Project activities the following measures will be adopted: (a) All work at the location of the potential find must cease and the CEnvO will be notified (b) The CEnvO will notify GPC's Environment Manager, who will undertake appropriate actions and provide management recommendations to the CEnvO (c) GPC's Environment Manager will notify the DES of any relevant finds in accordance with Section 89 of the Heritage Act.	Commitment included in Section 19.4 of the CEMP
The Project activities will comply with regional Cyclone Warning procedures and the Cyclone Contingency Plan for vessels within the Port. A stockpile of armour material will be held at the Targinnie/Yarwun quarry, sufficient to cover any exposed core material at the WBE reclamation if a cyclone were to approach Gladstone.	Included in Section 15 of the CEMP
The WB and WBE reclamation areas will be fully enclosed with appropriate fencing to restrict unauthorised access to the site. Site access will be through a principal secured entry point which will only be accessible by authorised site personnel. Any visitors to the site will be subject to strict admittance procedures.	The Project Area is a secured area with existing fencing. Admittance procedures will be implemented during the period of construction works

Appendix 4 – Project Air Quality Management Plan

AIR QUALITY MANAGEMENT PLAN

Northern Land Expansion Project – Southern Reclamation Area Bund Wall

Gladstone Ports Corporation

Date
8 January 2025

Report
247401.0095.R02V02

DOCUMENT CONTROL

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Reference	Date	Description	Prepared	Checked
247401.0095.R02V01	28/08/2024	Final	Hilbert Libres	Andrew Martin, CAQP FAirQual
247401.0095.R02V02	08/01/2025	Updating reference air monitoring station	Hilbert Libres, CAQP	Andrew Martin, CAQP FAirQual

Document Approval	
Approver Signature	
Name	Andrew Martin, CAQP FAirQual
Title	Manager Consulting Services – Air & Noise

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CONTENTS

APPENDICES

TABLES

TABLE OF ACRONYMS AND SYMBOLS

Parameter or Term	Description
AQMP	Air Quality Management Plan
BUF	Barge Unloading Facility
CD Project	Gatcombe and Golding Cutting Channel Duplication Project
CEMP	Construction Environmental Management Plan
DDG	Dust Deposition Gauge
DETSI	Department of Environment, Tourism, Science and Innovation
EA	Environmental Authority
EMP	Environmental Management Plan
EMS	Environmental Management System
GHG	Greenhouse gas
GPC	Gladstone Ports Corporation
ISO 14001	Internationally recognized standard for environmental management systems (EMS)
$mg/m^2/day$	Milligrams per square metre per day
NATA	National Association of Testing Authorities
NLEP SRA	Northern Land Expansion Project Southern Reclamation Area
PM_{10}	Particulates suspended in air with aerodynamic diameter less than 10 microns
TARP	Trigger Action Response Plan
TEOM	Tapered Element Oscillating Microbalance
TSP	Total particulates suspended in air
$\mu g/m^3$	Microgram per cubic metre
WBE	Western Basin Expansion (reclamation area)
WBRA	Western Basin Reclamation Area

BRIEF DESCRIPTION

This document describes the air quality control measures, environmental monitoring and related adaptive management actions designed for the Northern Land Expansion Project. The latter will consist of Southern Reclamation Area construction and will take place in the Western Basin, Port of Gladstone. The document details the legal requirements, management actions and associated monitoring and analysis required to ensure that all reasonable and feasible avoidance and mitigation measures are employed, so that the dust and particulate matter emissions generated by the activity do not cause elevations in dust and/or particulate matter at any dust sensitive place. The management plan builds on Gladstone Ports Corporation's experience in managing air quality, to ensure its Air Quality Management plans are best practice, robust, and fit for purpose.

Document information	
Review frequency	Annual
Review before	Commencement of Project
Audience	All GPC representatives, government and other stakeholders

Document accountability	
Role	**Position**
Owner	EGM Asset Manager, GPC
Custodian	Project Manager, GPC
Endorsed by	EGM Asset Manager, GPC

1. INTRODUCTION

1.1 Context

This Air Quality Management Plan (AQMP) has been prepared for the Northern Land Expansion Project Southern Reclamation Area (NLEP SRA or Project), which is the first stage of the Gatcombe and Golding Cutting Channel Duplication Project (CD Project). The CD Project was the subject of an Environmental Impact Statement process to meet Commonwealth and State Government legislative requirements. On 8 July 2020, the CD Project received 'coordinated project' approval, subject to conditions under the State Development and Public Works Organisation Act 1971 (Queensland).

On 24 December 2020, the CD Project received 'controlled action' approval, subject to conditions under the (Commonwealth) Environment Protection and Biodiversity Conservation Act 1999. These conditions relate to four (4) key stages of the project which are:

- Stage 1: Construction of the Western Basin Expansion SRA and the barge unloading facility (BUF)
- Stage 2: Means the first campaign of capital dredging (to a depth of -13.5 m LAT)
- Stage 3: Construction of the Western Basin Expansion Reclamation Area (North)
- Stage 4: Stage 2 capital dredging means the second campaign of capital dredging (to a depth of -16.1 m LAT).

This AQMP relates to the construction of the Western Basin Expansion SRA outer bund wall (hereinafter termed Northern Land Expansion Project (NLEP) - Southern Reclamation Area (SRA)). NLEP is part of Stage 1 of the CD Project, and does not include the construction of the BUF.

The NLEP-SRA will consist of a new 111.12-hectare reclamation area that will provide additional storage capacity for future capital dredging programs in the Port of Gladstone (e.g. Targinnie, Gatcombe and Golding Cutting Channels) and maintenance dredging, if required.

The project site to which this AQMP relates, is defined as areas of the construction footprint including:

- The outer bund wall
- The interface of the existing and 'new' bund walls
- Trafficable areas, laydown areas, and stockpiling areas.

The outer bund wall will be located predominantly on land below the high-water mark, identified as Lot 514 on SP311650 and Lot 511 on SP305597. The outer bund wall will link to the northern and southern extents of the existing WBRA outer bund wall within Lots 510 and 511 on SP305597.

1.2 Purpose

This AQMP has been established to communicate the operational requirements of the Construction Environmental Management Plan (CEMP). The AQMP details specific control measures to ensure that all reasonable and feasible avoidance and mitigation measures are employed. This is done to prevent dust and particulate matter emissions from the NLEP-SRA construction activities from causing a nuisance at any dust-sensitive place or commercial place.

To establish the dust management requirements at the site, the following objectives were reviewed:

- Compliance with conditions of Environmental Authority (EA) PA-EA-100261837
- Minimising the impacts of fugitive dust emissions on the environment and nearby residences
- Minimising the release of particulate emissions
- The effectiveness of the air quality management plan
- Mechanisms to effectively deal with elevated dust levels and complaints.

1.3 Scope

The AQMP applies to the construction activities which support the development of the NLEP-SRA outer bund wall construction, including:

- Stockpiling, lotting and quality control of materials
- Placement of materials to construct the outer bund wall
- Levelling and trimming of materials to design levels
- Transport of reclamation bund wall material from the stockpiles to the construction front
- Placement of core and armour material
- Installation of geotextile fabric
- Temporary removal of existing WBRA bund wall to lowest astronomical tide (LAT) to serve as fish passage
- Reinstatement of the bund wall following safe fauna salvage operations.

Note. The impacts on air quality from sourcing construction material are excluded from the scope of works and managed under separate approvals and management plans.

2. PLANNING

2.1 Management Systems

GPC has well-established management systems that are aligned with the international management system standard ISO 14001. These management systems provide the framework to support the planning, implementation, monitoring and review to achieve continual improvement in air quality management.

2.2 Risk Management

GPC implements a comprehensive risk management system as described in the Risk section of the CEMP. Air quality risks and their associated control measures are documented in the associated Environment Risk Assessment. Control measures are summarised in **Section 4** of this AQMP. Project related changes that have the potential to materially alter the air quality risk profile are managed in accordance with the Review Section of the CEMP.

The risk of dust from the construction activities, which includes geotextile placement, has been assessed to be low.

2.3 Legal Requirements

Requirements associated with air quality are defined within conditions of Environmental Authority PA-EA-100261837.

- **Condition A1**: Other than as permitted within this environmental authority, odours or airborne contaminants must not cause **environmental nuisance at a sensitive place or commercial place**.

- **Condition A2**: **Air Quality Management Plan**

  An Air Quality Management Plan must be developed and implemented by an **appropriately qualified and experienced person(s)** prior to the commencement of **activities**. The Air Quality Management Plan must be submitted to the **administering authority** at least 60 business days prior to commencement of construction or dredging activities. The proponent will amend the Air Quality Management Plan in accordance with any comments made by the **administering authority** prior to the commencement of **construction** or **dredging activities**.

- **Condition A3**: The Air Quality Management Plan required by Condition A2 must include:

  a. Identification of dust sources and activities which impact on dust sensitive areas
  b. A preventative management system for dust control
  c. A **Trigger Action Response Program**
  d. Design of an internal operational monitoring program including objectives
  e. Performance criteria and monitoring methods
  f. Number and location of monitoring sites
  g. Quality assurance/quality control (QA/QC) requirements
  h. Community liaison and stakeholder consultation
  i. Training of staff in dust management practices and their roles and responsibilities
  j. Reporting.

- **Condition A4**: When required by the **administering authority**, oxides of nitrogen (as NO_2) monitoring of power generators must be undertaken in accordance with the current edition of the **administering authority's** Air Quality Sampling Manual to determine the impact on the receiving environmental arising from the activity. The monitoring results must be provided to the **administering authority** within 10 business days of completion of monitoring.

- **Condition A5**: **Dust nuisance**

  The holder of this environmental authority must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the activity do not cause exceedances of the following levels when measured at any **sensitive place** or **commercial place**:

  a. Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard *AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter— Deposited matter – Gravimetric method*

  b. A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of either:

     i. Australian Standard *AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} high volume sampler with size selective inlet – Gravimetric method*, or

     ii. *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} low volume sampler— Gravimetric method.*

  c. A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of *AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—Total suspended particulate matter (TSP) — High volume sampler gravimetric method*.

     Note: an ongoing dust deposition monitoring program must be developed and implemented during the operation of the project. The PM_{10} and total suspended particles (TSP) air quality monitoring must be conducted in accordance with conditions A6 and A7.

- **Condition A6**: When requested by the **administering authority** or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring (including dust deposition, TSP and PM_{10}) must be undertaken, and the results thereof notified to the administering authority within 14 days following completion of monitoring. This includes providing interim reports if the monitoring lasts for more than one (1) month.

  Monitoring must be carried out at a place(s) relevant to the potentially affected dust **sensitive place**. Monitoring must be conducted in accordance with the appropriate standards.

- **Condition A7**: If the monitoring which is carried out in accordance with Condition A6 indicates an exceedance of the relevant limits in Condition A5, then the **holder** of this environmental authority must notify the **administering authority** within seven (7) days of an exceedance and investigate whether the exceedance is due to emissions from the **activity**. If the **dredging activity** is found to be the cause of the exceedance, then the holder of this environmental authority must:

  a. address the complaint including the use of appropriate dispute resolution if required

  b. immediately implement dust abatement **measures** so that emissions of dust from the **activity** do not result in further **environmental nuisance**.

Table 1: NLEP-SRA air quality and dust deposition monitoring criteria

Indicator	Release Limit	Averaging Period	Location	Monitoring Frequency
Mass Deposition of total insoluble matter	120 $mg/m^2/day$	One month	dust sensitive place	When requested by the administering authority, or as a result of a complaint*
Particulate matter (PM_{10})	50 $\mu g/m^3$	24-hour averaging time	dust sensitive place	When requested by the administering authority, or, as a result of a complaint*

* refers to a compliant which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer

Associated requirements:

a. Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter— Deposited matter – Gravimetric method

b. (i) Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—PM_{10} high volume sampler with size selective inlet – Gravimetric method, or

   (ii) Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—PM_{10} low volume sampler— Gravimetric method.

c. AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—Total suspended particulate matter (TSP) — High volume sampler gravimetric method.

Additionally, the EIS Commitments (Appendix I of the Revised Draft EIS) summarises the avoidance, mitigation, management, inspection and monitoring commitments that appear in the impact assessment, including those relating to dust emissions.

3. ASPECTS AND POTENTIAL IMPACTS

The EIS for the Port of Gladstone CD Project has identified the following key dust-generating activities for the NLEP-SRA bund wall construction:

- Extraction of source rock materials from Targinnie/Yarwun quarry area, where dust emissions are controlled under the Earthworks Environmental Management Plan
- Transport of construction materials from the quarry to the WB or SRA
- Unloading construction materials
- Placement and compaction of construction materials
- Road maintenance.

Dust emissions due to the WBE reclamation area (northern area) and BUF construction are expected to represent the worst-case scenario for dust impacts during the construction phase of the entire Project. This is due to the longer travel distance from the quarry area to the northern bund wall, a higher maximum number of trips per day from the quarry area, and associated BUF construction activities. Predicted ground-level concentrations of particulates and dust deposition rates, due to the worst-case construction scenario, were predicted to comply with the relevant air quality objectives at the locations of sensitive receptors (see **Appendix A** - **Figure 2**), provided control measures are in place.

Given that estimated dust emissions due to the construction of bund walls at the SRA were found to be significantly lower than during the northern area bund wall construction, and that BUF construction and dredging activities will not be undertaken at this stage, exceedances to dust criteria at sensitive receptors are not expected.

Also, air quality issues relating to odour and construction equipment exhaust emissions are not anticipated to be of concern since dredging activities will not be undertaken and exhaust emissions of criteria pollutants are assessed to be minor. It is understood that there will be no power generators required for construction or operation.

Greenhouse gas (GHG) emissions from the Project components that would be under GPC's control would temporarily increase GPC's annual GHG emissions. However, the total GPC annual GHG emissions are predicted to be under the safeguard mechanism trigger. The SRA bund wall construction accounts for less than 11% of the Project's GHG emissions, primarily from the operation of diesel-fuelled equipment and haul trucks at the SRA and the quarry area.

4. CONTROL MEASURES

4.1 Air Quality Control Measures

To reduce the emissions of fugitive dust and/or particulate matter, the NLEP-SRA approvals require GPC to implement all reasonable and feasible avoidance and mitigation measures regarding depositional dust and particulate emissions.

The key avoidance measures are:

- All materials used for the construction of the outer bund wall are to be sourced in their required state with no crushing or grading to occur onsite. Outsourcing the materials will eliminate dust associated with generating the requirement materials.
- Bund wall type 1 and type 2 material is comprised of sound igneous, metamorphic, or sedimentary rock that will not disintegrate in water or when exposed to the weather. The material will be free of overburden, spoil, shale (or other argillaceous rock), clayey material, or organic matter. The material specifications help mitigate fugitive dust emissions from construction activities with the potential to impact air quality.

- Vehicle and heavy machinery movements are to be restricted to routes and speed limits identified in the Traffic Management Plan. These routes are to be capped with road base or constructed out of rock (e.g. the outer bund wall), and therefore limit the generation of fugitive dust emissions.
- Placement of material associated with the construction of the outer bund wall may be carried out at two (2) relatively small areas work fronts, and at low rates. The shape of the bund wall is a frustum, thus a large portion of the materials used are to be placed into the benthic zone or water. This process limits the generation of dust associated with the construction of the outer bund wall.
- The material to be used for armouring the bund wall is rock that consists of individual stones which are either igneous or metamorphic in origin, and which are dense, sound, resistant to abrasion and free of cracks, cleavage planes, seams and other defects which would result in breakdown of the stone in the environment of the site of the works. This material will be subject to tidal inundation thus negating the generation of fugitive dust emissions.
- Particulate emissions from large fuel burning equipment (i.e. equipment capable of burning at least 500 kg fuel in an hour), is not permitted onsite.
- No fixed equipment (including temporary equipment) with a point source emission is to be located on site.

The location of the project ensures the construction will take place away from local residences. Other places present in the area are heavy industrial sites located at a distance of approximately 500 metres or more from the western bund wall. The risk of impacting any dust sensitive residential or commercial place is very low.

Despite the project's low risk to generate fugitive dust and/or particulate emissions, which have the potential to impact any residential or commercial premises, a dust and particulate monitoring program (refer to **Section 6**) will be put in place prior to the construction of the NLEP-SRA outer bund wall. Effective dust control measures shall also be applied to ensure that dust and/or particulate matter resulting from the activity does not cause environmental nuisance at any nuisance-sensitive place. Key mitigation measures are detailed in **Table 2**.

Table 2: Key air quality mitigation measures

Dust source/activities	Air quality mitigation measures
Mobile equipment: Particulate emissions from mobile equipment	All equipment shall be maintained in good working order
Stockpiling: Unloading/loading of materials to hard stand	Apply dust suppression to hard stand where materials are to be loaded/unloaded
Stockpile management: Stockpiling of materials	If appropriate, use water truck to dampen materials
Vehicle traffic: Light vehicles trafficking site	■ Apply dust suppression to roads regularly accessed by light vehicles ■ All roads to be speed limited
Vehicle traffic: Heavy vehicles entering and leaving site	■ Apply dust suppression to roads regularly accessed by heavy vehicles – Level 1 watering (2 litres/m^2/h) on unsealed haul roads ■ All roads to be speed limited ■ Implementation of controls within the Erosion and Sediment Control Plan ■ Install vibration grids at both ends of haul route from the quarry to the WBE reclamation area to reduce dust/mud deposition on public roads.
Vehicle traffic: Heavy vehicles transporting materials to the work front(s)	■ Apply dust suppression to haul roads – Level 1 watering (2 litres/m^2/h) on unsealed haul roads ■ All roads to be speed limited ■ Heavy vehicles to use designated routes only
Outer bund wall: Placement of construction materials (e.g. type 1, type 2)	If appropriate, use water truck to dampen materials
Outer bund wall: Placement of filter rock and armour / riprap	If appropriate, use water truck to dampen materials
Outer bund wall: Shaping of materials	If appropriate, use water truck to dampen materials
Outer bund wall: Placement and shaping of wearing surface	If appropriate, use water truck to dampen materials
Outer bund wall: Installation of geo-fabric sand filter materials	Contractor's CEMP to meet Project CEMP objectives and requirements
General construction activities	■ Staff are to undertake mandatory training in dust management requirements that align with their roles and responsibilities (as per the Environmental Training section of the CEMP) ■ Discuss dust control practices during safety toolbox talks or when needed (e.g. after high dust events or complaints are received)

The relevant supervisor must be alerted if dust suppression measures are identified as inadequate or ineffective, or if an air quality complaint or incident occurs (refer to Roles and Responsibility and Complaints sections in the CEMP).

4.2 Greenhouse Gas Mitigation Measures

The most practical opportunities for the mitigation of GHG emissions are predominantly fuel efficiency initiatives that include:

- Selection of fuel efficient machinery and vehicles, where possible, matched to the delivery requirements of quarry materials to the reclamation site
- Minimisation of diesel consumption during the earthworks on the reclamation site through equipment selection, maintenance and operational procedures in line with manufacturer recommendations
- Ongoing consideration and evaluation of the potential to supplement fuel volumes with bio-diesel. This is to be undertaken by GPC during the detailed design phase of the Project.
- Optimisation of transport of materials through load optimisation and delivery scheduling.

5. TRIGGER ACTION RESPONSE PLAN

The Trigger Action Response Plan (TARP) details the preventative and corrective controls to manage the dust risk associated with the NLEP-SRA construction stage, with the objective to prevent a dust nuisance to sensitive receptors and commercial places. The TARP is facilitated real-time, via weather alerts and supported by air quality particulate data from the Boat Creek (4.4 kilometres east of the site) and Targinie (4.2 kilometres south of the site) monitoring stations (via the Department of Environment, Tourism, Science and Innovation's (DETSI) Air Quality Monitoring Network Stations, online at Environment, land and water | Queensland Government.

These monitoring stations are suitable for use as reference in managing dust risks at the site through the following:

- Long-term data from these monitoring stations establishes the background levels of dust in the region.
- Trends from these monitoring stations can identify patterns in dust levels and be applied to the distant site. For example, if dust levels increase during certain seasons or weather conditions, activities at the site can be managed to reduce contribution to dust impacts.
- Investigating the correlation of data between these two monitoring stations, while considering wind conditions and surrounding dust sources, can help infer if any observed dust level exceedances are due to the site's activities.
- Data from any local dust monitoring near the site or sensitive receptors (i.e. following a dust complaint) can be correlated with DETSI's monitoring data for a comprehensive assessment.

If dust suppression measures are inadequate or ineffective, or an air quality complaint or incident occurs, actions will be conducted in accordance with the TARP.

Table 3: Trigger Action Response Plan

Trigger/Level	Action Response Plan Earthworks Supervisor	Action Response Plan Environment Support
LEVEL 1 Visual dust lift off within the site boundaries in immediate area of activity	■ Water truck to dampen traffic areas as required to prevent dust drift from construction footprint ■ Stage works to limit disturbance to exposed material (potential dust sources) while progressively stabilising areas where practical ■ Travel speeds restricted (40 km/h)	As requested
LEVEL 2 Visual dust lift off within the site boundaries outside immediate area of activity	■ Increase frequency of watering to dampen all visible dust sources within the construction footprint ■ Include utilisation of water sprays on the water truck to increase dust suppression coverage to non-tracked paths (including stockpiled material within the construction footprint) ■ Prestart to record increase in dust suppression activity undertaken	As requested
LEVEL 3 Visual dust lift off within the site boundaries extending beyond site boundaries	■ Additional water trucks to be deployed ■ Pre-start to record additional water trucks in use	Tracking of data and escalation to Earthworks Supervisor for review against activities and site conditions
LEVEL 4 Dust threshold triggered at offsite Realtime Monitor or dust complaint is received	■ Include utilisation of cannons on the water truck to increase dust suppression on surrounding dust sources (i.e. dredge cells) ■ Prestart records to verify the dust mitigation level enacted for Environmental Compliance Support *Note. A record of the review and associated outcome should be kept*	■ Confirm data ■ Support investigation with weather and dust data ■ If required by the administering authority or as a result of a complaint, ensure monitoring is carried out in accordance with the EA ■ If exceedance is observed from the monitoring, investigate whether the exceedance is due to emissions from the activity ■ Evaluate mitigation options and implement corrective actions ■ Ensure exceedance reporting requirements are met

6. AIR QUALITY MONITORING PROGRAM

6.1 Rational

The purpose of establishing a monitoring and control program is to maintain updated information about the status of the dust control measures. It evaluates the actual performance of these measures against the objective of preventing, reducing, and controlling dust emissions, and thereby providing insights for updating any actions.

6.2 Inspections and Audits

During construction, daily on-site and off-site inspection shall be undertaken in accordance with the Project's CEMP to monitor dust emissions from the site. This should include regular dust soiling checks of surfaces. More frequent site inspections should be carried out by the person accountable for dust issues on site when dust-generating activities are being carried out during prolonged dry or windy conditions.

A general construction dust management inspection form for completion weekly by the site manager (or delegate) is provided in **Appendix B**. Specific monitoring and investigation of particular issues must also take place as appropriate or at the request of a regulatory agency.

Internal audits may be undertaken to ensure adherence to the requirements of this AQMP and the environmental laws, regulations, and standards.

6.3 Dust Measurements

Monitoring associated with the AQMP must be conducted in accordance with relevant Australian Standards cited in Condition A5 of the EA (refer to **Section 2.3**) which are outlined below:

- *AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method*
- *AS3580.9.6 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} high volume sampler with size selective inlet – Gravimetric method*
- *AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} low volume sampler – Gravimetric method*
- *AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.*

Particulate Matter: Real-time air quality stations

Air quality monitoring data from the two (2) nearby monitoring stations (Boat Creek and Targinie) will be checked as necessary to support any investigation and analysis. These stations are operated and maintained by DETSI, with information readily available online at Environment, land and water | Queensland Government.

Deposition Dust: Dust Deposition Gauges (DDGs)

For operational purposes, the rate of mass deposition of total insoluble matter will be sourced from three (3) DDGs within the existing WBRA, as illustrated in **Appendix A – Figure 3**. Samples will be collected every 30 days ± two (2) days. These samples will be analysed by a National Association of Testing Authorities (NATA) accredited laboratory, which will also undertake appropriate quality assurance/quality control. The mass deposition rate of total insoluble matter provided in the results will be screened against the threshold of 120 $mg/m^2/day$ and used for internal evaluation.

In the event of dust complaints, monitoring for TSP, PM_{10} and dust deposition will be conducted at the sensitive locations where the complaints arise. The monitoring results will be screened against the limits specified in Condition A5 of the EA (refer to **Section 2.3**).

6.4 Data Quality Assurance and Quality Control

Tapered Element Oscillating Microbalance (TEOM) data is to be screened periodically to identify erroneous data and/or elevations in background conditions that represent a regional event (e.g. bushfires).

DETSI's monitoring equipment is maintained and calibrated in accordance with manufacturers' specifications and relevant standards.

Depositional dust samples are to be analysed by a NATA-accredited laboratory to determine the mass deposition rate of total insoluble solids and combustible matter from ambient air.

7. CORRECTIVE ACTIONS

Corrective actions to mitigate or reduce the impacts of dust emissions from the construction activities should be identified on the basis of the site inspection and, if completed, dust monitoring arising from a complaint. A general procedure when an exceedance is identified is as follows:

- Identify the air emission source causing dust impacts
- Propose corrective actions
- Implement corrective actions
- Review air monitoring post-mitigation to confirm dust concentrations are below the relevant criteria.

8. COMMUNITY LIAISON AND STAKEHOLDER COMMUNICATION

Communications with the complainant will be managed in line with the NLEP Communications and Stakeholder Engagement Plan (see Community Feedback and Complaint Process section). This section includes details about GPC's Environmental Complaints Management Procedure which has been prepared to meet the requirements of the EMS ISO 14001:2015.

In the event an air quality compliant is received, monitoring will be conducted in accordance with the Trigger Action Response Program.

If a report on air nuisance is received, or excessive dust generation is observed during daily observations, a toolbox talk will be held with staff as soon as practicably possible.

Table 4: Summary of stakeholder feedback methods

Mechanism	Description
Telephone	Contact the GPC community hotline (1800 243 472)
Website	Send a message via the GPC web site www.gpcl.com.au/contact/
Formal letter/email	Contact the Project Communications Specialist – via email (corporaterelations@gpcl.com.au) or mail (c/o Gladstone Ports Corporation, PO Box 259, Gladstone Queensland 4860)

Public information about NLEP will be available on the Gladstone Ports Corporation website (gpcl.com.au) – Major Projects.

9. RESPONSIBILITIES

The maintenance and update of this plan is the responsibility of the Project Manager.

Implementation of operational controls is the responsibility of the Construction Supervisor.

All employees and contractors are to be trained in their responsibilities to ensure that all reasonable and feasible avoidance and mitigation measures are employed, so that the dust and particulate matter emissions generated by the activity do not cause elevated levels of dust and/or particulate matter at any dust sensitive place.

10. RECORDS, REPORTING AND REVIEW

10.1 Records

In accordance with the Project's Environmental Management Plan, records of all inspections, audits, complaints, monitoring and associated documents and approvals will be kept and maintained for at least 5 years in either the GPC's Risk Management System (Cintellate) or GPC's Document Management System (EDocs).

10.2 Reporting

Where air quality monitoring is required by the administering authority in response to a complaint, the results will be notified to the administering authority within 7 days following completion of monitoring or any exceedance of the relevant limits. Interim reports are to be provided to the administering authority if the monitoring lasts for more than one month.

10.3 Review and Performance Indicators

This AQMP will be reviewed and evaluated annually to assess its adequacy and effectiveness. If necessary, this AQMP will be revised to incorporate any recommended measures to improve the environmental performance resulting from audits, community complaints and incident investigation findings, or at the request of the administering authority. The environmental performance of this AQMP will be reviewed and assessed using the following indicators:

- Comply with relevant air quality objectives at locations of sensitive receptors
- No air quality related complaints.

REFERENCES

Environmental Authority PA-EA-100261837, Gladstone Ports Corporation Limited (GPC)

EIS for the Port of Gladstone Gatcombe and Golding Cutting Channel Duplication Project

NLEP Construction Environmental Management Plan – Risk Assessment – Air Quality (Draft)

APPENDIX A FIGURES

Figure 1: NLEP SRA boundary (red line) and stockpile locations

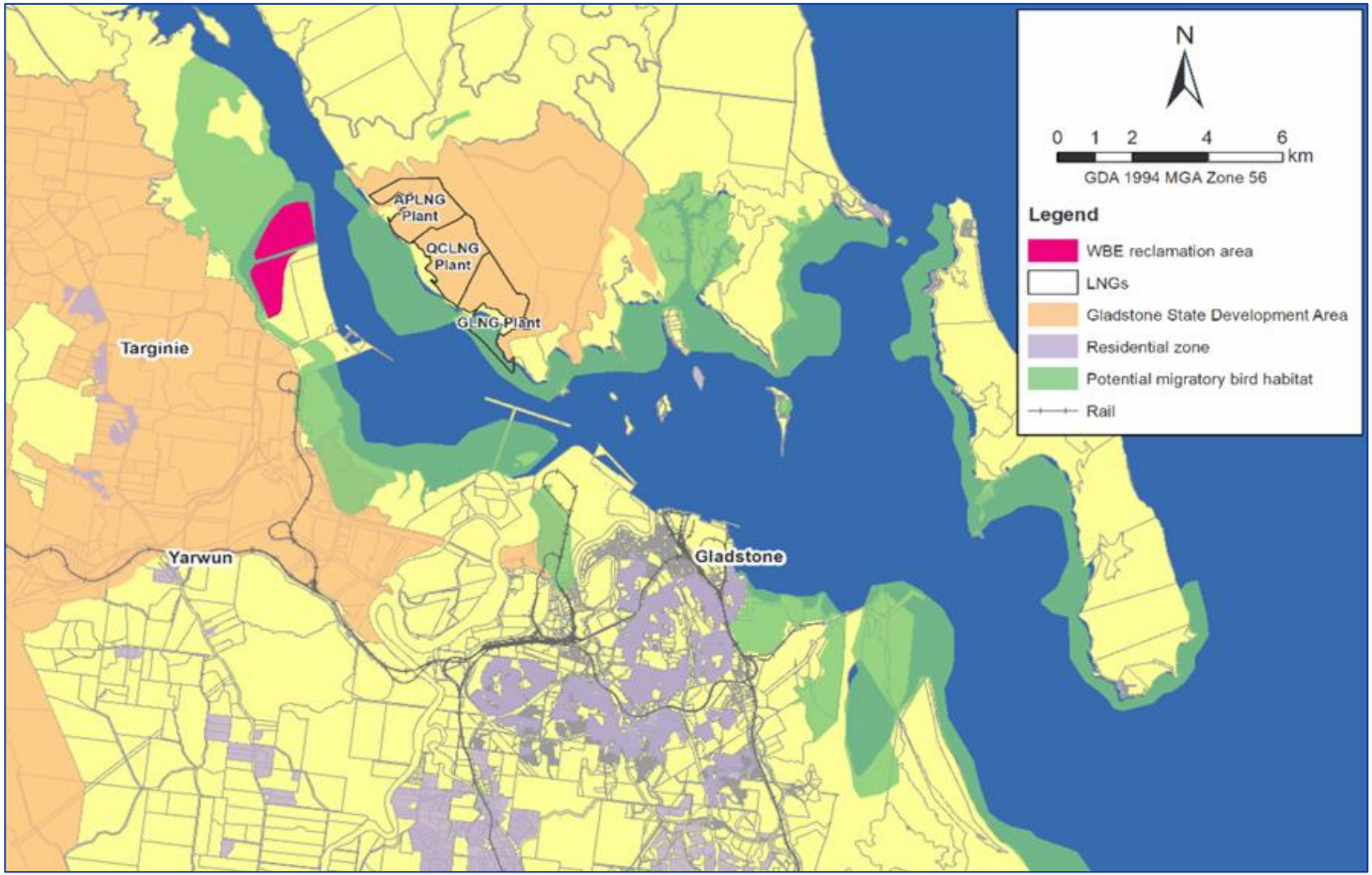

Figure 2: Sensitive receptor locations

Figure 3: Nearest commercial places and approximate DDG monitoring locations.

APPENDIX B RECORD OF WEEKLY CONSTRUCTION DUST CONTROL

Part A – Initial Identification (To Be Completed by Site Manager)

Company Name:	
Name and Position of Inspector:	
Phone Number:	
Project Name:	

Part B – Checklist (To Be Completed by Site Supervisor/Project Manager)

	Date	Time	Visible Dust	Project phase / Activity	Trackout Present/ Cleaned	Verification of Compliance with Dust Control Measures
Monday						
Tuesday						
Wednesday						
Thursday						
Friday						
Saturday						

Part C – Effectiveness Analysis (To Be Completed by Site Supervisor)

Was their visible dust released from the work site? (i.e. impact on driver vision)	Yes or No
Do the dust control measures require improvement?	Yes or No
Other Comments	

Part D – Review (To Be Completed by Project Manager)

If any of the above questions were answered YES, it is imperative to conduct a thorough review and revision of the CEMP's Air Quality Risk Assessment, particularly concerning construction dust management.

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