Priority port master planning

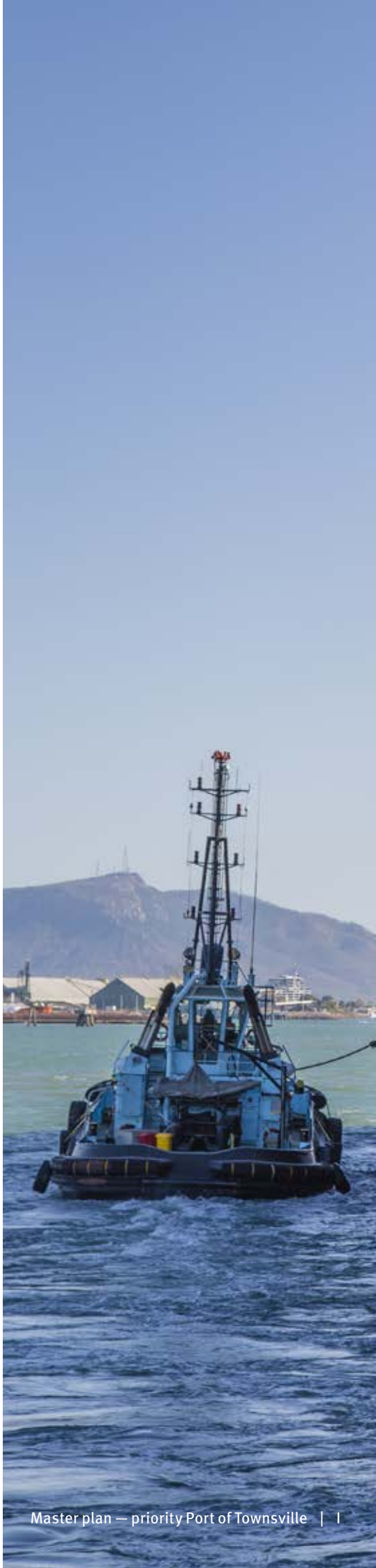
# Master plan
## Priority Port of Townsville

Queensland | Australia | 2019

Queensland Government

# Contents





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# Foreword

As the first and last link in the freight network, Queensland's ports connect our diverse regions to the world for the benefit of all Queenslanders.

The Port of Townsville is the largest general freight and container port in northern Australia and is a critical regional hub that drives growth and generates jobs.

The port supports a wide range of industry sectors including resources, agriculture, cruise industry, local tourism, and provides a strategic role in Australia's defence capabilities.

Public focus on sustainable development of ports has grown in recent years, in line with the significant shift towards greater environmental awareness.

A key priority for the Queensland Government is its commitment to protecting the Great Barrier Reef. Priority port master planning is one of a range of policy initiatives demonstrating this commitment.

Other initiatives include strengthened vegetation clearing legislation, regulating activities which contribute to water pollution, and implementation of the *Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports*.

The *Sustainable Ports Development Act 2015* is the only state-based sustainable port development legislation in Australia. The Act provides a legislative framework to balance the protection of the Great Barrier Reef with the development of the state's major bulk commodity ports.

This Act responds to the UNESCO World Heritage Committee's recommendation that Australia develops a long-term plan for sustainable port development to protect the Great Barrier Reef.

Priority port master planning recognises that ports are critical international trade gateways and must be planned in a way that is sustainable—balancing economic growth, job creation, environmental values, and community interests.

Townsville port master planning provides strategic direction for long-term investment projects in the port including:

- the Townsville Port Expansion Project
- the acceleration of the Townsville State Development Area
- Townsville Port Access Road
- proposed Townsville Eastern Access Rail Corridor
- supporting the North West Minerals Province export route.

Master planning is a process fundamental to ensuring Queensland's priority ports have a long-term vision for growth and expansion.

It provides a foundation for economic activity generated by port industries and it provides business, industry, and community with the certainty they need in a way that respects its place alongside the reef and the environmental, cultural, and social values shared by the communities in which the ports are located.

Bulk mineral being loaded on Berth 8
Australian naval vessel alongside Berth 10

# Overview

The priority Port of Townsville is the largest general cargo and container port in northern Australia and is critical to Queensland's economy. It supports a wide range of associated industry sectors, including resources, energy and agriculture, and plays a strategic role in Australia's defence capabilities.

The port also plays a vital role in tourism for the region by providing important facilities for the cruise industry and local tourism operators, including passenger and vehicle transportation to Magnetic Island and Palm Island.

The strategic vision acknowledges the port is a major driver of economic growth as North Queensland's primary freight, fuel, logistics, container, tourism and defence infrastructure hub.

## Northern Australia's trade gateway

This master plan recognises that the priority Port of Townsville is well positioned to benefit from the increasing focus on investment in northern Australia, and contribute significantly to regional employment opportunities. The strategic vision acknowledges the port is a major driver of economic growth as North Queensland's primary freight, fuel, logistics, container, tourism, and defence infrastructure hub.

## Protecting the Great Barrier Reef

The priority Port of Townsville operates in the Great Barrier Reef World Heritage Area (GBRWHA). The master plan establishes a strategic and coordinated approach that ensures the Outstanding Universal Value (OUV) of the GBRWHA is an intrinsic consideration in the management of port-related development. This approach complements other initiatives being undertaken by the Queensland Government and port authorities to manage port operations and development within the GBRWHA.

## Promoting economic development

The master planned area encompasses the Townsville Port Expansion Project (PEP), Townsville State Development Area (TSDA), Townsville Port Access Road (TPAR) and the proposed Townsville Eastern Access Rail Corridor (TEARC), which together provide land and supply chain infrastructure to support economic activity generated by port industries.

The master planned area is divided into specific precincts to provide certainty about where port-related development can be established and expanded to capitalise on investment opportunities.

Vessels at Port of Townsville

## Port optimisation

The proposed TEARC, combined with the PEP, can deliver an increase in port capacity, provide reliable and direct access to the port and minimise unnecessary load transfers, splitting or handling of goods. The master plan also supports opportunities for efficient use of existing capacity through multi-user access arrangements. This optimisation of existing supply chain infrastructure will minimise transportation costs for producers, transporters, distributors and consumers, and improve the efficiency of the freight network.

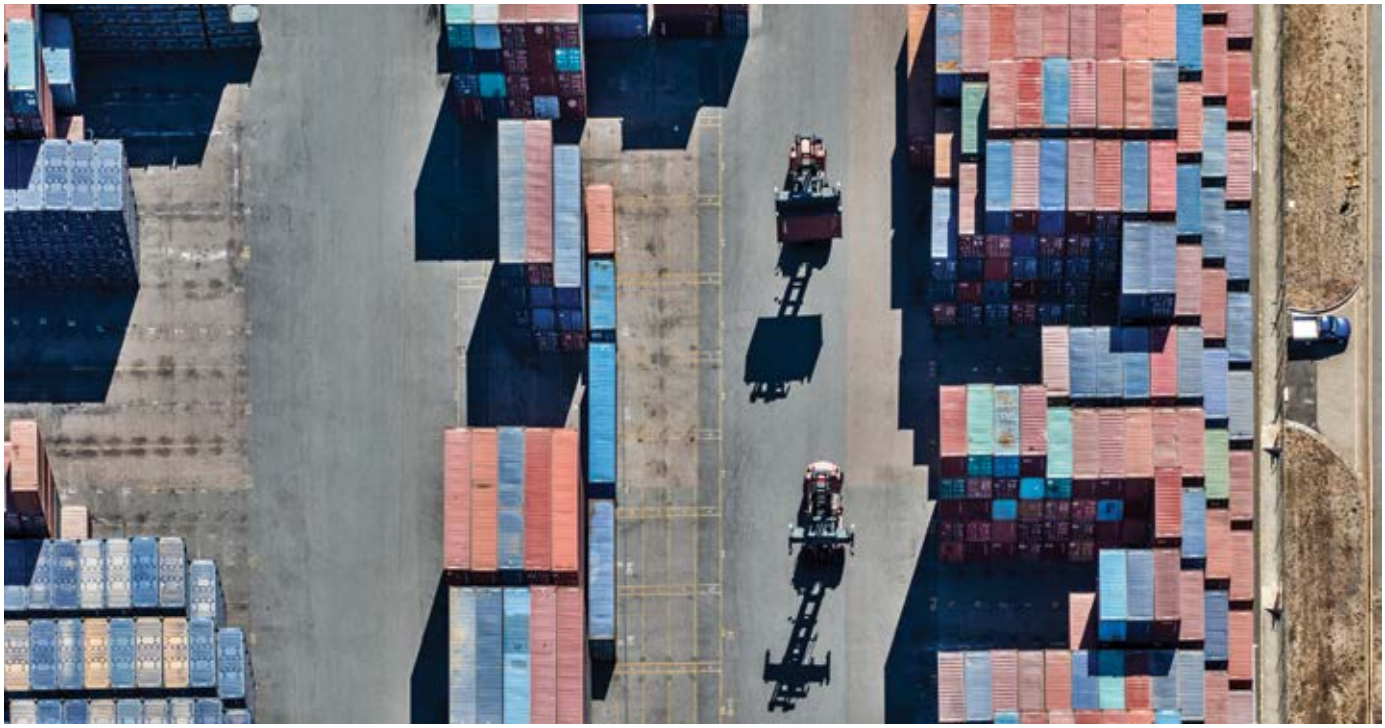
## Integrated freight transport network

The efficient movement of freight between producers and customers is vital for the sustainable growth of the region's economy. The master plan recognises the port forms a critical component of the freight network that moves goods throughout the region and facilitates trade with national and international markets.

## Implementation

The master plan is a strategic document that is implemented by the port overlay. The port overlay operates with existing planning instruments to guide future development in the master-planned area to achieve the long-term vision.

The master plan complements the existing regulatory system and does not remove any existing processes. Additional regulation through the port overlay is only provided where necessary to deliver the outcomes of the master plan.



Containers at port

# Introduction

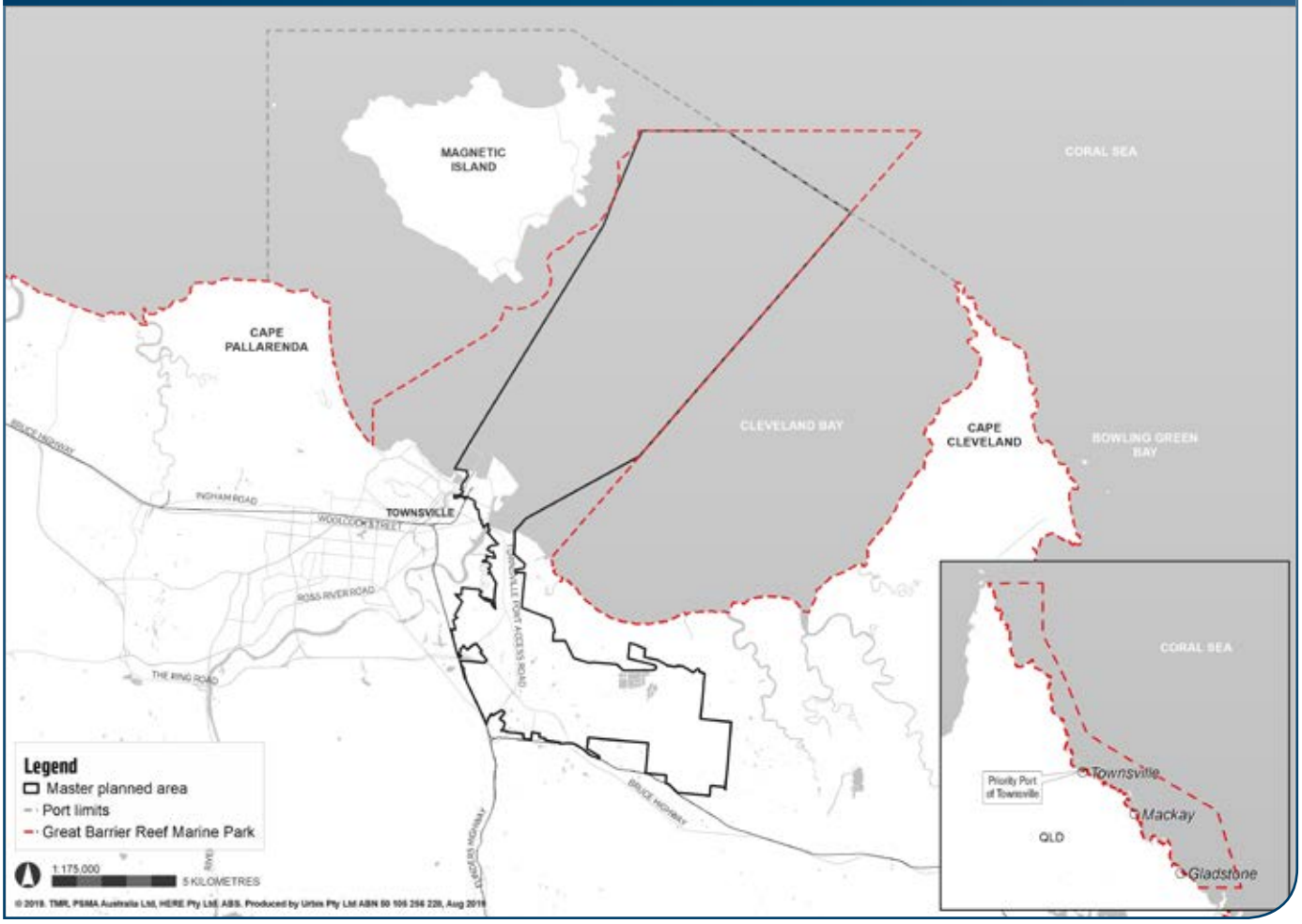
The purpose of the master plan for the priority Port of Townsville is to provide strategic direction and guide the long-term sustainable development of the port and surrounding land and marine areas to 2050.

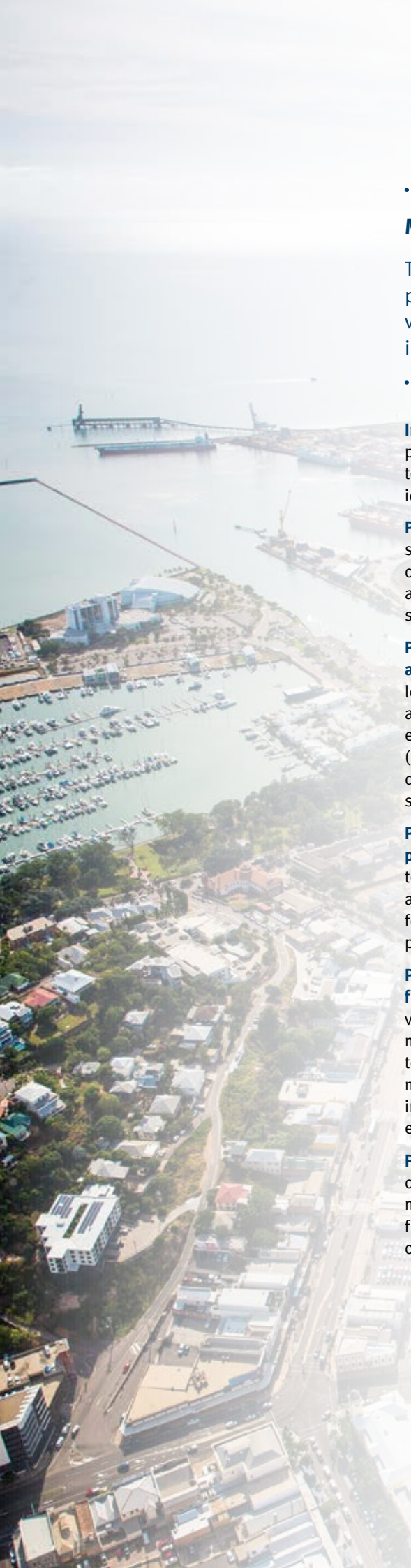
The extent of the master planned area identified in **Figure 1** includes land and marine areas required for the efficient development and operation of the port, and the long-term protection of the Great Barrier Reef. The map of the master planned area is also provided in **Appendix A**.

## What is a master plan?

Master plans for priority ports are strategic documents that have a long-term outlook for the sustainable development of port operations to 2050. Long-term master planning provides a strategic and coordinated approach to managing port-related development and considers issues including marine and land-based impacts, as well as port and supply chain infrastructure optimisation. Master planning also ensures that the OUV of the GBRWHA is an intrinsic consideration in managing port-related development.

**Figure 1 — Master planned area**





## Master plan at a glance

This master plan for the priority Port of Townsville consists of several parts which set out the background, state interests, strategic vision, spatial extent, environmental management framework, and implementation of the master plan.

**Introduction:** describes the master plan, how it is implemented and relates to other policy initiatives, and also identifies state interests for the port.

**Part A – Context:** identifies the significance, role and function of the Port of Townsville, as well as key considerations to manage sustainable growth.

**Part B – Strategic vision, objectives, and desired outcomes:** states the long-term vision of the master planned area that considers the principles of ecologically sustainable development (ESD), and outlines objectives and desired outcomes which outline how the strategic vision will be achieved.

**Part C – Master planned area and precincts:** identifies a spatial area to which the master plan applies and precincts that outline the intent for distinct areas within the master planned area.

**Part D – Environmental management framework:** identifies the environmental values within and surrounding the master planned area (also refer to **Appendix B** for the associated mapping), identifies potential impacts and outlines how impacts on environmental values are managed.

**Part E – Master plan implementation:** outlines the implementation of the master plan through the regulatory framework and a separate port overlay instrument.

**Appendix A – Priority Port of Townsville master planned area regulation map:** provides the regulatory map of the master planned area.

**Appendix B – Mapping of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area and other environmental values:** provides consolidated mapping of the various environmental values within and surrounding the master planned area.

**Appendix C – Dictionary:** provides definitions relevant to the master plan.

**Appendix D – Abbreviations and acronyms:** provides a table of abbreviations and acronyms used in the master plan.

**Appendix E – Local attributes of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area:** identifies the natural features of OUV expressed within and surrounding the Port of Townsville. These have been categorised into features having a significant, moderate, or minor contribution to the GBRWHA.

**Appendix F – Potential impacts on environmental values:** outlines potential impacts on environmental values within and surrounding the master planned area.

**Appendix G – Environmental management framework objectives:** outlines objectives for each precinct to minimise potential impacts from development, including the OUV of the GBRWHA, matters of national environmental significance (MNES) and matters of state environmental significance (MSES). The objectives identify sustainable targets to inform environmental management within the master planned area.

# Why is there a master plan?

The Queensland Government is implementing master planning for the priority ports of Gladstone, Townsville, Hay Point/Mackay and Abbot Point, in accordance with the *Sustainable Ports Development Act 2015* (Ports Act), and to meet its commitments under the *Reef 2050 Long-Term Sustainability Plan* (Reef 2050 Plan).

## Reef 2050 Long-Term Sustainability Plan

The Reef 2050 Plan is a comprehensive plan developed by the Australian and Queensland governments to secure the health and resilience of the Great Barrier Reef and to protect the OUV of the GBRWHA. The Reef 2050 Plan included a number of commitments that related to the management of port-related development.

The commitments involved restricting capital dredging to the four priority ports, prohibiting the sea-based placement of capital dredged material from port-related development, and mandating the beneficial re-use of port-related capital dredged material.

A mid-term review of the Reef 2050 Plan in 2018 monitored the government's progress in meeting its commitments. The review recognised the introduction of the Ports Act as a key policy response to managing port development in the GBRWHA.

Following the mid-term review, the Reef 2050 Plan was updated to recognise the progress of the Queensland Government in mandating master planning for the priority ports. The Reef 2050 Plan now outlines one master planning port-related action which relates to completing master planning for priority ports in accordance with the Ports Act (MTR EBA9 - Reef 2050 Plan reference)[1].

## Sustainable Ports Development Act

The Ports Act provides a legislative framework for sustainable port planning and development in Queensland. The Ports Act implements a number of Queensland Government port-related commitments and actions made under the Reef 2050 Plan, and responds to United Nations Educational, Scientific and Cultural Organisations World Heritage Committee (UNESCO WHC) recommendations on the reef, ensuring the OUV of the GBRWHA is an intrinsic consideration in future port development.

The purpose of the Ports Act is to provide for the protection of the GBRWHA through the management of port-related development in, and adjacent to, the area. This is achieved through the following measures:

- concentrating port development in the GBRWHA to the priority ports
- mandating the preparation of master plans and port overlays for each priority port to establish a long-term vision for future port development
- restricting capital dredging for the development of new or expanded port facilities to within regulated port limits of the priority ports
- prohibiting sea-based placement of capital dredged material from port-related development within the GBRWHA and Commonwealth and state marine parks
- mandating the beneficial reuse of port-related capital dredged material.

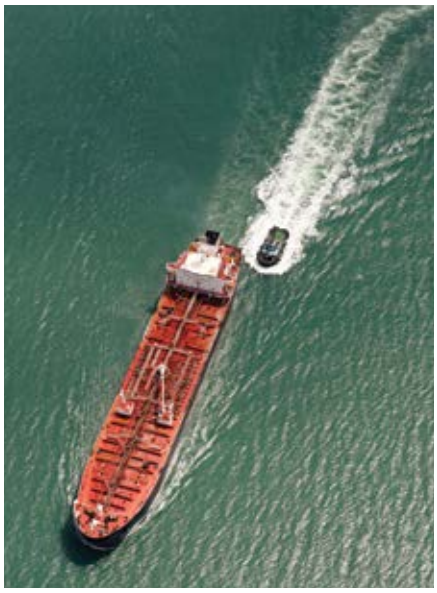
The Ports Act provides requirements for the content of the master plan which include existing and future state interests, strategic vision, objectives and desired outcomes for the master planned area.

The master planned area identifies land and marine areas critical to the effective operation of the port network. This allows for consideration of issues beyond port-owned land to effectively manage future port-related development and the protection of the GBRWHA.

The Ports Act implements a number of Queensland Government port-related commitments made under the Reef 2050 Long-Term Sustainability Plan.

Under the Ports Act, master plans must include an environmental management framework (EMF). The EMF provides for the identification and management of development impacts on environmental values. This includes objectives and measures (priority management measures) for managing potential impacts on environmental values.

The master plan must also adequately consider the principles of ESD.



Fuel tanker heading to port

## How is the master plan implemented?

Under the Ports Act, master plans are strategic documents which are implemented by a port overlay. The port overlay operates with existing planning instruments, as shown in **Figure 2,** to guide future development in the master planned area to achieve the long-term vision.

The master plan complements the existing regulatory system and does not remove or replace any existing processes. Additional regulation through the port overlay to guide port-related development outcomes will only occur where gaps are identified in the existing regulatory framework that would impact the delivery of master planning outcomes. This approach recognises the outcomes sought by the master plan are, in many cases, already achieved through existing provisions and reduces duplication of provisions.

The Ports Act requires that the master plan be reviewed at least every 10 years. The review includes an assessment of the master planned area and the effectiveness of the implementation of any priority management measures. The master plan review process also informs whether consequential amendments to the port overlay are required.

The master plan may be reviewed outside this mandatory period to respond to major changes in policy or legislation.

Wind turbines being unloaded at the port

**Figure 2 — Implementation of the port overlay within the relevant planning frameworks**

***Sustainable Ports Development Act 2015***
Priority port master plan

**Port overlay**

**Statutory instrument**

The port overlay enables regulatory implementation of the priority port master plan over priority port master planned areas.

***Transport Infrastructure Act 1994***

**Port land use plan**

***Planning Act 2016***
State planning policy

**Local government planning scheme**

**Mandatory consideration—port overlay prevails**

In making or amending local planning instruments or a port land use plan, matters specified in the port overlay must be considered.

Decisions made about development applications must not be inconsistent with the port overlay.

***State Development and Public Works Organisation Act 1971***
State Development Areas

**State Development Area development scheme**

***Economic Development Act 2012***
Priority Development Areas

**Priority Development Area development scheme**

**Consistency**

The development schemes for State Development Area (SDA) and Priority Development Area (PDA) must be checked for inconsistency with the port overlay.
The port overlay does not regulate development in a PDA or SDA.

# Regulating port operations

Queensland's ports operate within a comprehensive regulatory framework and must satisfy many local, state and Commonwealth government planning and regulatory requirements. Master planning is just one component of the regulatory and compliance framework in which ports operate.

The master plan and the port overlay complement this system and do not remove or replace any existing environmental assessment or state and local planning processes which operate under relevant legislation as well as the requirements of the Ports Act.

## Environmental assessment

State and Commonwealth environmental impact statement (EIS) assessment processes under the *Environmental Protection Act 1994* (EP Act), the *State Development and Public Works Organisation Act 1971* (SDPWO Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) provide for rigorous assessment of major projects to ensure development occurs in a sustainable manner and unacceptable impacts on environmental values do not occur. This includes the appropriateness and acceptability of identified environmental management arrangements.

The EP Act also provides a framework for regulating environmentally relevant activities (ERAs) through a permit and licensing system. This system ensures ERAs manage, enhance or protect environmental values through conditions or enforcement processes.

Environmental protection policies such as the *Environmental Protection (Air) Policy 2019*, *Environmental Protection (Noise) Policy 2019* and *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* outline thresholds, indicators, and objectives for enhancing or protecting environmental values, as well as providing a framework for consistent and informed decisions about managing ongoing environmental impacts.

## State and local planning processes

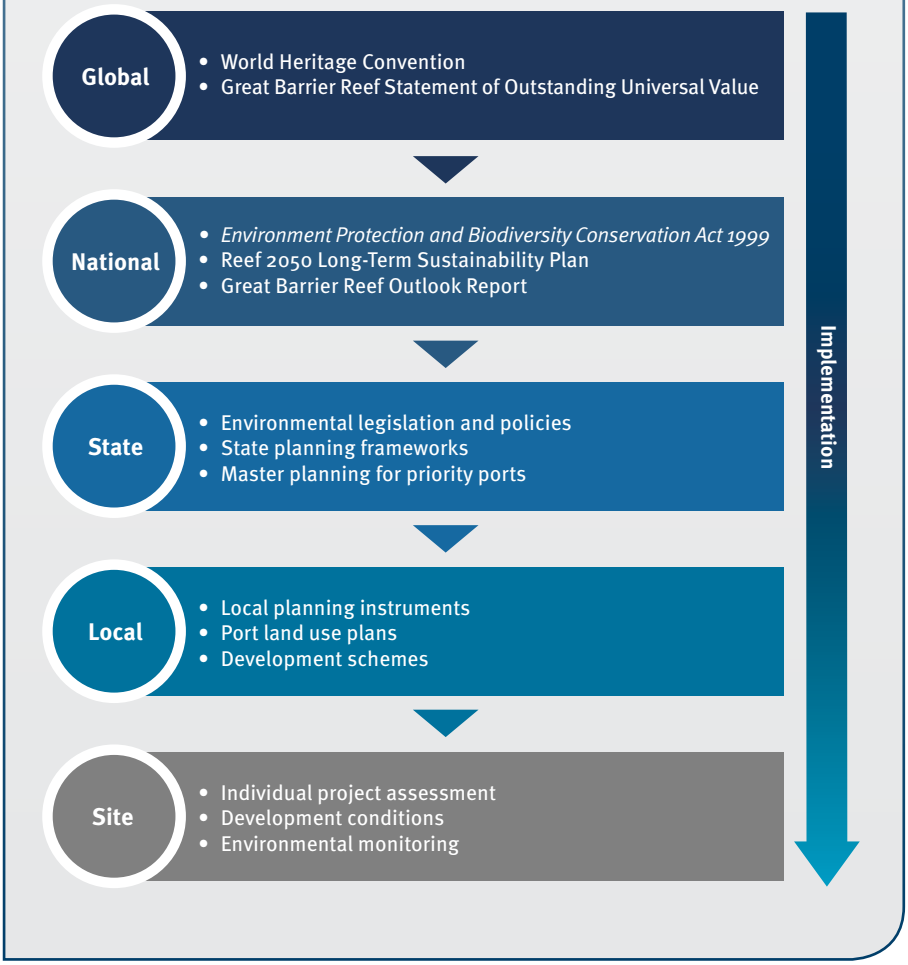
State planning instruments, including the *State Planning Policy* (SPP) and regional plans, set out critical planning matters, which guide local planning instruments to achieve development outcomes in each local government area. The SPP supports the 'avoid-mitigate-offset' hierarchy embedded in Queensland's planning and environment legislation.

The *Planning Regulation 2017* identifies that certain development must also be assessed against the State Development Assessment Provisions. This ensures impacts on matters including transport corridors, coastal development, native vegetation, marine plants, and fish habitat areas are subject to rigorous assessment and appropriate conditions to manage the potential impacts from the development.

Priority Development Areas (PDAs) and State Development Areas (SDAs) promote economic development and growth by concentrating development in selected areas. This ensures efficient land use and infrastructure optimisation to avoid, or minimise, environmental impacts in accordance with the avoid-mitigate-offset environmental hierarchy.

Land use plans under the *Transport Infrastructure Act 1994* have an important role in planning for port development on Strategic Port Land (SPL) by identifying where and how particular land uses should occur.

**Figure 3 — Planning from the international to the local level**



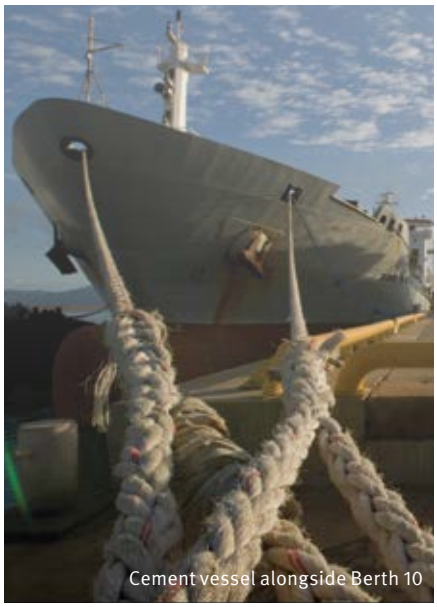
# Regulating development within the master planned area

There are a range of Queensland and Australian government controls that apply to development within the master planned area. All environmental legislative requirements will continue to apply to development proposals[2] .

The following instruments currently provide assessment requirements which regulate development within the master planned area (see **Figures 3 and 4**):

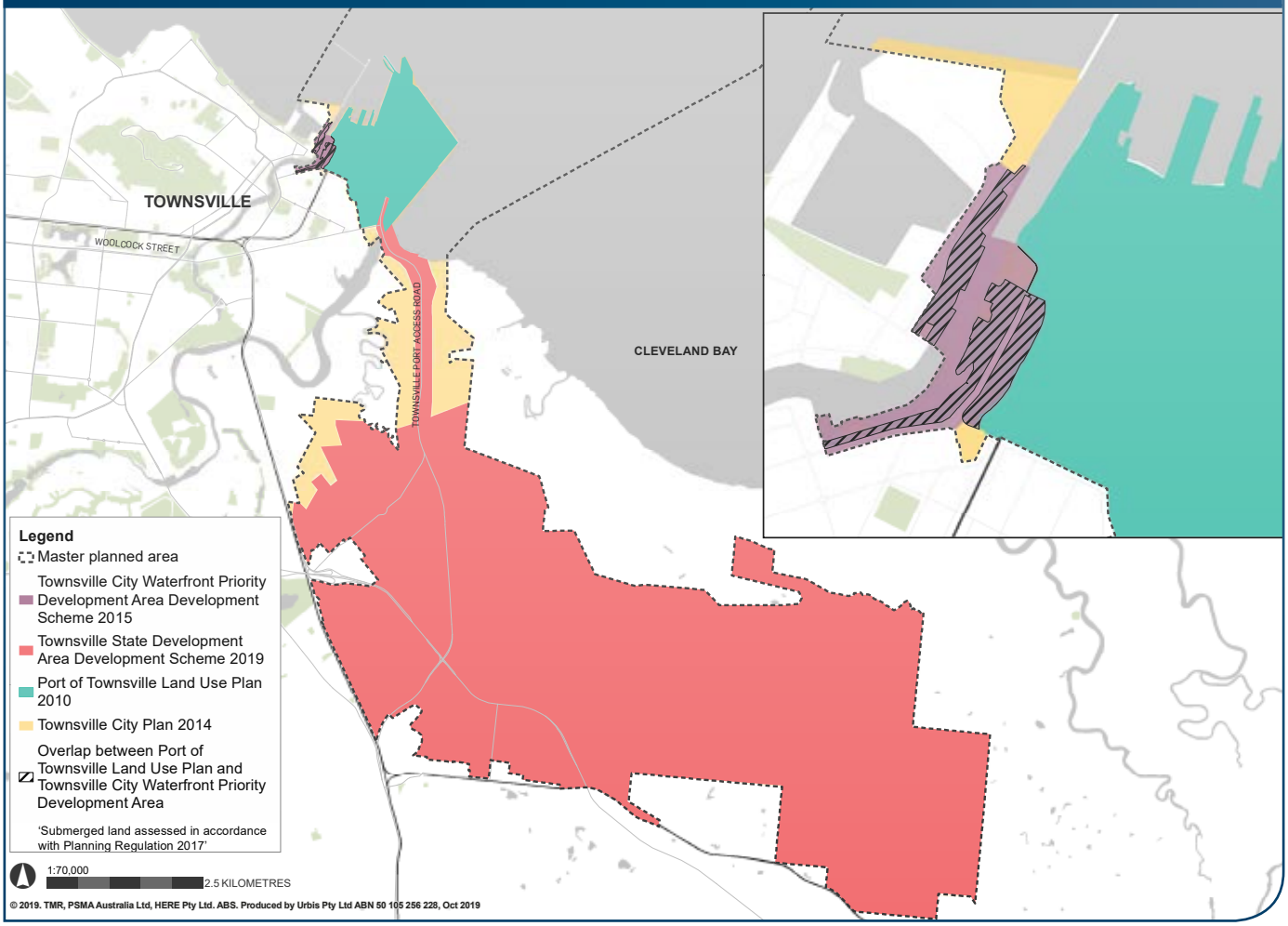
- the Townsville City Plan under the *Planning Act 2016*
- the Townsville City Waterfront Priority Development Area Development Scheme under the *Economic Development Act 2012*
- the Townsville State Development Area Development Scheme under the *State Development and Public Works Organisation Act 1971*
- the Port of Townsville Land Use Plan under the *Transport Infrastructure Act 1994*.

There are a range of Queensland and Australian government controls that apply to development within the proposed master planned area.



Cement vessel alongside Berth 10

**Figure 4 — Planning instruments operating within the master planned area**



Container vessel on Berth 3

# Related policy initiatives

There are a number of policy initiatives and projects that are linked with master planning for the priority Port of Townsville, across all levels of government. The master plan does not seek to amend these policies but recognises the important role each of these initiatives play in the ongoing sustainable development of the port. These initiatives highlight the economic significance of the port to the region and the importance of managing environmental values and social impacts.

## Queensland Government

### Our Future State: Advancing Queensland's Priorities

The Queensland Government has committed to 'Protect the Great Barrier Reef' as one its key priorities identified in *Our Future State: Advancing Queensland's Priorities*. Protecting the environmental, social, and economic value of the Great Barrier Reef drives many Queensland Government environmental policies and activities, including priority port master planning.

### Townsville City Deal

The Townsville City Deal is a 15-year commitment by the three levels of government to deliver transformative outcomes for Townsville and its communities. Priority projects under the Townsville City Deal are targeted to support economic growth, deliver major infrastructure, create new and sustainable jobs, and enhance the liveability of the city.

The Commonwealth, state and local governments are progressing a number of City Deal commitments related to the Port of Townsville. These include the Channel Upgrade Project, TEARC and acceleration of the TSDA projects under the Port City and Industry Powerhouse for the North initiatives. The City Deal also identifies several future opportunities for further consideration including Port and Supply Chain Prioritisation.

### Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports

*The Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports* (Maintenance Dredging Strategy) provides for sustainable, leading practice management of maintenance dredging. Under the Maintenance Dredging Strategy, Port of Townsville Limited (POTL) has developed a long-term maintenance dredging management plan (LMDMP) which reflects the *Guidelines for Long-Term Maintenance Dredging Management Plans*. Further details about the POTL LMDMP is provided in the maintenance dredging section.

### North Queensland Regional Plan

The Department of State Development, Manufacturing, Infrastructure and Planning released the *draft North Queensland Regional Plan* which will set the vision for northern Queensland and provide a blueprint for the region's future.

### Northern Queensland Regional Transport Plan

The Department of Transport and Main Road's (TMR) Draft *North Queensland Regional Transport Plan* (NQRTP) recognises the important role of the Port of Townsville and road and rail supply chain infrastructure in supporting regional goals for the community, economy, and environment. The draft NQRTP outlines the importance of the port as part of the regional transport network for exporting commodities, predominantly mineral resources from the North West Minerals Province (NWMP), and facilities provided for the cruise ship industry and Australian Defence Force.

### Port Air Emissions Project

TMR is undertaking a Ports Air Emissions Project to provide further guidance about the future development of land around ports. The project is being undertaken in partnership with the Department of Environment and Science and is guided by a steering committee of relevant government partners and port authorities. The outcomes of this project will help inform the management of air quality near ports.

### Queensland Freight Strategy: Advancing Freight

The *Queensland Freight Strategy: Advancing Freight* was released in March 2019 and is a 10-year strategy to support heavy vehicles, shipping, rail, and air cargo across Queensland. It recognises that the freight network is comprised of public and private infrastructure and services provided by transport operators. The strategy outlines five shared commitments critical to building an integrated, resilient and safe Queensland freight system:

- build effective partnerships
- unlock economic opportunity
- smarter connectivity and access
- a resilient freight system
- safer freight movements.

The strategy also acknowledges the importance of delivering solutions that sustain freight and provide for social and environmental outcomes that align with priority port master planning.

### Queensland Transport Strategy

The draft *Queensland Transport Strategy* (QTS) is a future-focused, whole-of-system transport strategy based around strategic customer outcomes and objectives from the *Transport Coordination Plan 2017–2027 (*TCP). The final QTS will guide how TMR responds to future change and position Queensland to respond to, and maximise, the benefits from transformational changes over the long term. It will also ensure our future transport system continues to meet customer needs. Both the TCP and the QTS recognise the pivotal role that port and freight supply chains play in supporting the state's economy—connecting Queensland industries with domestic and international markets.

### Smarter Solutions: Network Optimisation Framework

The Queensland Government's *Smarter Solutions: Network Optimisation Framework* prioritises the consideration of low cost and non-infrastructure solutions within the planning and investment process.

The framework encourages network optimisation solutions to ensure the existing transport network and infrastructure is optimised before major investment. In certain situations, this can generate comparable outcomes to new infrastructure, and reduce or delay the need for significant capital expenditure and potential environmental impacts that may arise from new development.

Project cargo laydown

### State Infrastructure Plan

The *State Infrastructure Plan* (SIP) released in 2016 outlines the Queensland Government's strategic direction for the planning, investment, and delivery of infrastructure. The SIP recognises that ports are key logistical infrastructure which provide access to markets, and the importance of coordinating infrastructure and planning initiatives.

The SIP identifies infrastructure priorities and opportunities supporting the long-term sustainable development of the priority Port of Townsville. These include the Channel Upgrade Project, the TSDA, Mount Isa Rail Line (MIRL), and investment in port infrastructure to improve access to the port.

The SIP recognises optimisation can be achieved through planning for infrastructure corridors, data gathering and analytics for improved demand forecasting, and information sharing.

### State Planning Policy

The SPP outlines the state interests[3] in land use planning and development that must be considered in every planning scheme across Queensland. The SPP recognises the importance of ports to the national and state supply chains and includes a state interest to protect the growth and support the development of strategic ports. The Port of Townsville is identified as both a strategic and a priority port under the SPP.

### Transport Coordination Plan

The TCP, released in October 2017, brings a contemporary approach to the coordinated planning and management of transport, including a strong focus on customer needs and technology. The TCP provides a strategic framework for the planning and management of transport resources in Queensland for the next 10 years.

Further, the TCP includes a specific objective for transport to facilitate the efficient movement of people and freight to grow Queensland's economy. This includes a commitment to focus on improving connectivity along key freight corridors in regional areas. The TCP also outlines an investment prioritisation hierarchy which focuses on optimising existing infrastructure before investing in new infrastructure.

## Australian Government

### Australian Infrastructure Plan

The *Australian Infrastructure Plan* prepared by Infrastructure Australia seeks to identify infrastructure reforms and investments required to manage population growth, the Asia-Pacific's growing demand for Australian goods and services, and environmental challenges. The plan focuses on opportunities to develop the economy of northern Australia and identifies the MIRL rail corridor upgrade, including TEARC, as a future initiative on the Infrastructure Priority List.

### Defence White Paper

The *Defence White Paper* was released in 2016 and outlines future Australian Government investment in national defence infrastructure capabilities in Townsville. This will involve new and upgraded facilities at Townsville to transform logistics and drive efficiencies such as enhanced storage, distribution, and logistics facilities.

Vessel loading bulk cargo at Berth 8


Off-loading project cargo onto barge at Berth 10

## National Freight and Supply Chain Strategy

Following the *Inquiry into National Freight and Supply Chain Priorities Report* in 2018, the Council of Australian Governments' Transport and Infrastructure Council agreed to a framework for developing a *National Freight and Supply Chain Strategy*. The strategy will build on the outcomes of the inquiry and outline an integrated, national approach for the movement of goods to ensure freight systems and infrastructure work across state and territory borders. The Transport and Infrastructure Council is working with state, territory and local governments to implement the strategy.

## National Ports Strategy

The *National Ports Strategy* was released in 2011 and recommends recognising the important economic role of ports, and related freight supply chains and developing long term integrated master plans guided by leading practice and supported by various levels of planning.

## North-East Shipping Management Plan

The *North-East Shipping Management Plan* (NESMP) was prepared in 2014 by the Australian Maritime Safety Authority (AMSA). It demonstrates how shipping is managed in sensitive marine environments and proposes actions to minimise environmental impacts on the OUV of the GBRWHA. The North-East Shipping Management Group, which includes both Australian and Queensland government agencies, implements the actions on an ongoing basis and released a review of the NESMP in July 2019 to align with updates to the Reef 2050 Plan.

## Queensland Coastal Passage Plan

The *Queensland Coastal Passage Plan* (QCPP) is produced by AMSA which seeks to improve pre-pilotage communications and the readiness of vessels transiting coastal pilotage areas within the Great Barrier Reef. The QCPP operates with the REEFVTS ship reporting system based in Townsville and Under Keel Clearance Management (UKCM) requirements, to assist safe passage of vessels transiting through the Great Barrier Reef.

## White Paper on Developing Northern Australia

The *White Paper on Developing Northern Australia* was released in 2015 by the Australian Government. It provides a vision and an economic development plan to unlock the economic potential of northern Australia, which is based on its proximity to Asia and enhances international trade opportunities and national security.

Cargo trucks loading for export

## State interests

Under the Ports Act, state interests are matters that are affected, or likely to be affected by existing uses of the master planned area, and future development at, or for, the priority port[4]. The purpose of the state interests is to provide a clear, consolidated and comprehensive view of the interest of the state in port-related development within the master planned area. The state interests have been informed by the policy documents and regulatory framework as described in the related policy initiatives section.

The purpose of the state interests is to provide a clear, consolidated and comprehensive view of the interest of the state in port-related development.

The state interests have been identified to balance and deliver the interest of the state within the master planned area. State interests are consistently applied across the master planned area through the strategic vision, objectives and desired outcomes, in order to implement the master plan.

**Figure 5 — State interests for the master plan**

**Management of port-related development**

The ongoing development and operation of the priority Port of Townsville to meet regional industry and defence requirements

**Economic**

The sustainable economic growth of the priority Port of Townsville and surrounding region

**Environment**

Protection of the OUV of the GBRWHA and other environmental values

**Infrastructure**

Protection and efficient use of port and supply chain infrastructure

**Community**

The wellbeing of the community in the Townsville region.

# Part A : Context

## Townsville and its port

The Gurambilbarra Wulgurukaba People and the Bindal People[5] are the original custodians and traditional owners of the greater Townsville area known as Gurambilbarra. The Wulgurukaba People are also the original custodians and traditional owners of Magnetic Island (Yunbenun). Descendants of these traditional owner groups continue to maintain strong cultural and traditional affiliations with land, waterways, and sea country within and surrounding the master planned area.

### Townsville: port city

Townsville was founded in 1864 as a port for the fledgling settlement on Ross Creek to serve the local community, pastoral areas, sugar industry, and regional goldfields.

The history of the port and the city of Townsville are closely aligned and have developed together over time. The port has one of the most diverse trade profiles of any regional port in Australia and is not reliant on any single commodity. This reflects the diverse regional economy which includes agriculture, minerals, tourism, and manufacturing industries.

The historical proximity of the port to the Central Business District (CBD) means that port-related development needs to be managed to support both the ongoing operation of the port and the future redevelopment of waterfront areas.

### Townsville: largest city in northern Australia

Townsville is the largest city in northern Australia and is the primary administrative and service centre for North and North West Queensland. The port serves as a major distribution point and trading gateway for a large geographic region which has a regional population base of around 800,000 people and strong transport links to mineral and energy resource areas and fertile agricultural land.

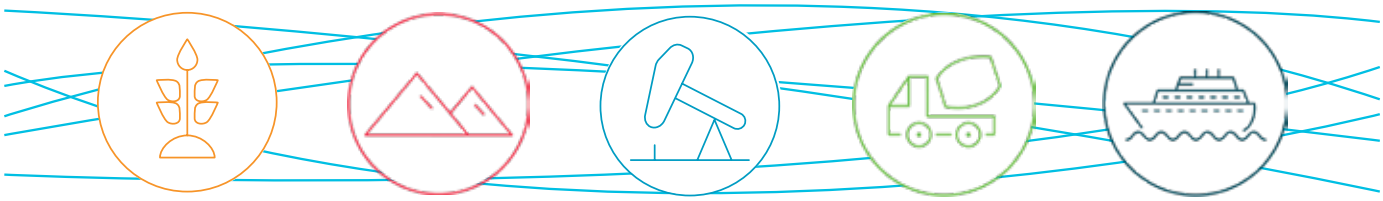
The catchment population drives demand for everyday goods and materials that arrive through the port, as well as the industries that rely on the import and export of goods and materials.

### Townsville: northern Australia's trade gateway

The Port of Townsville has a comparative trading advantage as the largest container port in northern Australia. Because of its proximity to the economies and markets of South East Asia and China, sailing times from Townsville are two days less than from Brisbane. As a result, the port has close links with Asia with over 75 per cent of trade with Asian markets. The port also supports broader international trade with freight departing to over 130 destinations worldwide.

The port promotes trading opportunities with international partners to meet Asia's accelerating demand for minerals, energy, agricultural products, and tourism experiences.

Vessels at Flinders Street wharves - early 1900s



## Role and function of the port

The Port of Townsville is the largest container, automotive, and general cargo port in northern Australia. It is also the largest exporter in Australia of high value minerals such as lead, zinc and copper as well as the largest exporter of agricultural products such as sugar, fertiliser, rice and live cattle.

It serves a vital role in import of everyday goods such as fuel, food, medicine, electrical goods, cement, bitumen, and vehicles. The port is also home to commercial fishing, ship repair facilities, and ferry services to Magnetic Island and Palm Island.

International trade through the port is valued at around AU$9 billion annually with over 30 different commodities—from high value minerals, to agricultural products such as sugar, fertiliser, rice, and live cattle—exported through the port.

The port currently caters for Panamax size vessels. The existing channels support single vessel transits and are relatively narrow, which restricts the movement of larger vessels (such as car carriers, military vessels and cruise ships) in unfavourable weather and tidal conditions.

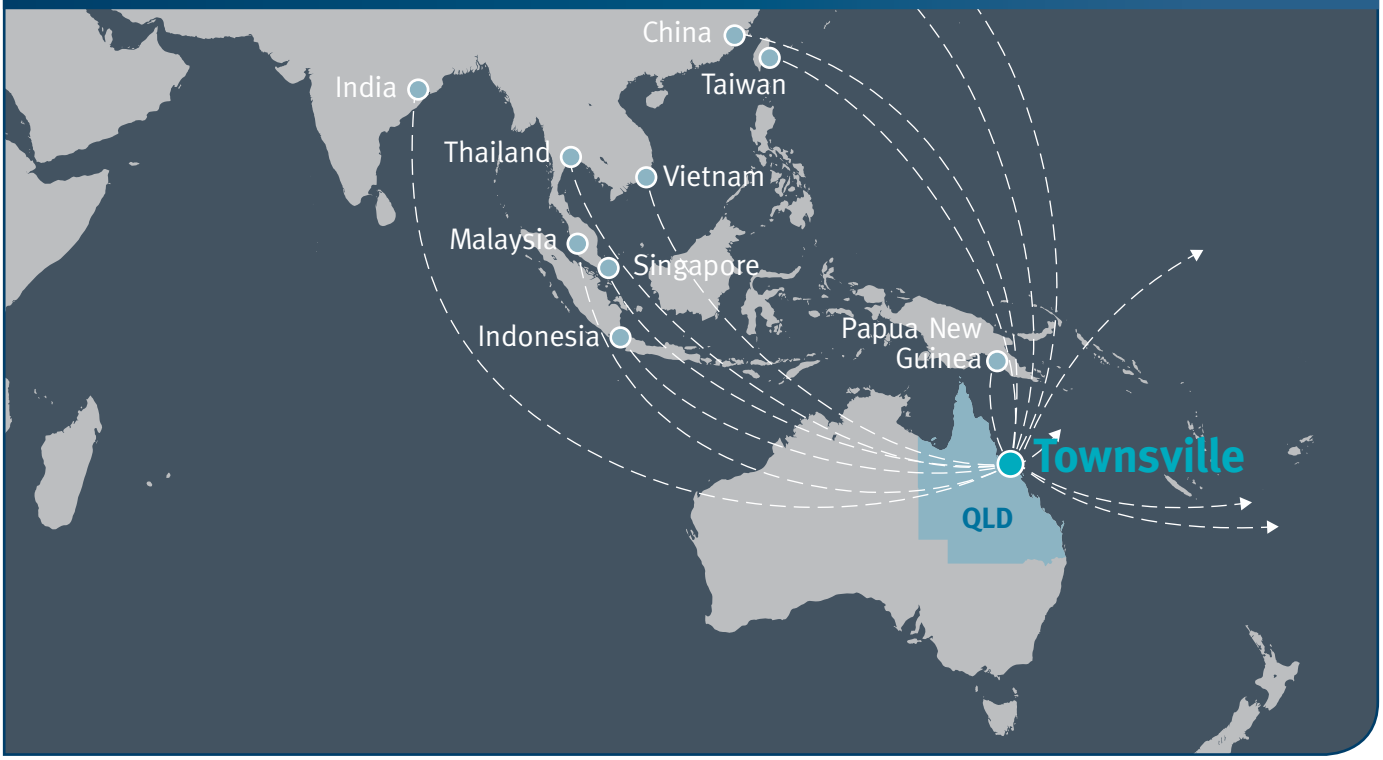
The well-established role and importance of the port in supporting trade activities and regional economic growth is set to continue. With the recent environmental approval of the PEP, the demand-driven development of new berths and operational areas will support the port's vital role as Australia's gateway for shipping, containerised trade, and tourism to the Asia Pacific region.

### Export route for the North West Minerals Province

The NWMP is the second largest minerals mining area for base metals (lead, silver, zinc and copper) in the world and holds approximately 75 per cent of Queensland's base metals supply. There is significant potential for the future exploration and extraction of rare earth deposits for export through the port. These resources provide substantial benefits to the region and are a key contributor to the Queensland economy as a key global supplier of minerals critical to the production of a range of products including mobile phones, wind turbine generators and electric cars.

The port forms part of an integrated supply chain for mineral and energy developments in the NWMP. Products from the NWMP are transported via either road or rail to the port for processing or export. The port has capacity to service future NWMP resource developments and support economic growth and employment opportunities.

**Figure 6 — Port of Townsville international trade destinations**




## Agriculture

The region serviced by the port contains good quality agricultural land with reliable growing conditions that has, and continues to be, a cornerstone of the regional economy for more than a century. Agricultural commodities such as sugar, molasses, live cattle, horticulture and fertiliser comprise almost half the volume throughput of the port. This reflects the fact that agricultural areas are serviced by excellent road and rail connections to the port and nearby processing facilities.

The port enables local producers and graziers to build on an existing strong global reputation for high-quality produce to supply international markets. With global food demand expected to increase 75 per cent by 2050, the port provides a key export route for expanded agricultural production in the future.

## Cargo and containerised freight

More than a quarter of trade through the port is general and industrial cargo. This comprises a range of everyday goods such as fridges, cars and electronic goods, through to cement and project cargo for renewable energy projects, such as wind and solar farms.

Containerised trade at the port has increased to support demand for imported goods. It is estimated that larger vessels containing goods and products ultimately destined for the region may bypass the Port of Townsville with the cargo being transported by road or rail to the region. Transporting these goods directly to Townsville by ship can reduce transport time, cost, and greenhouse gas emissions from road and rail freight movements, thereby increasing competitiveness.

## Fuel

The Port of Townsville has a significant role as a major fuel import hub for North and North West Queensland. This includes fuel for cars, public transport, aviation and defence industries, as well as diesel for mining and agricultural sectors. The port has the capacity to service a growing regional population and keep freight moving into the future.

Loading bulk fertiliser for distribution

Molasses bulk liquid silo

Naval vessels docking

General cargo vessel at berth 3 with the newly upgraded berth 4 in the foreground

## Figure 7 — Port snapshot

**Townsville**
is the largest city in northern Australia

**800,000** approx.
people in catchment

**75%** of trade from Townsville with **Asian markets**

**Export route**
for the North West Minerals Province

**over 130 port** connections to **44 countries**

**70%** of northern Australia's population serviced

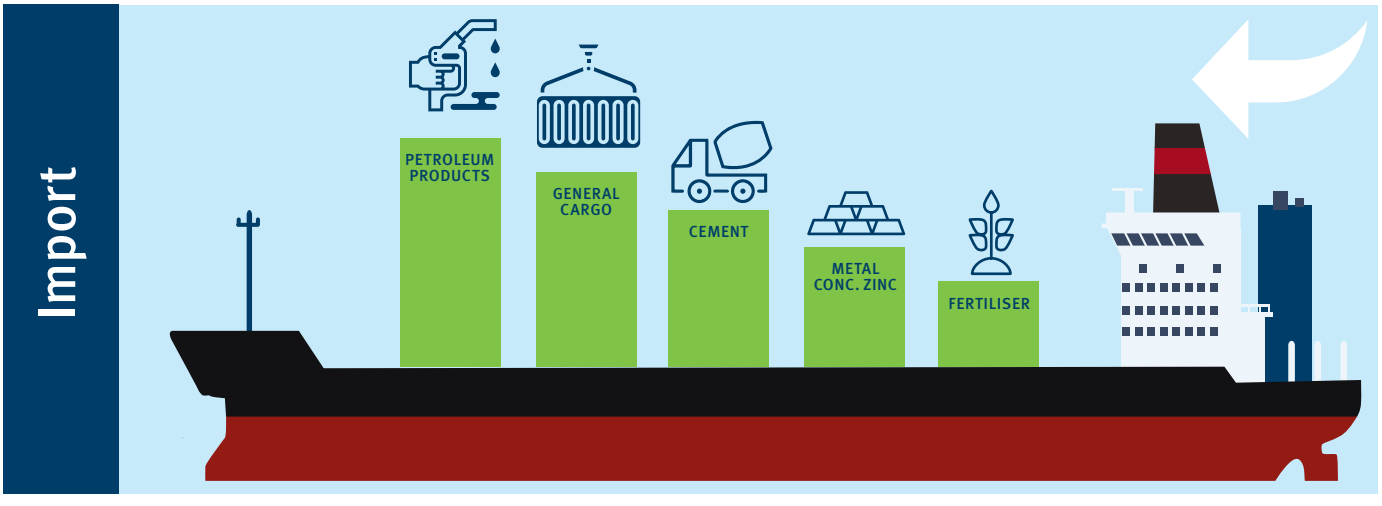
Australia's largest **irrigated cropping** areas for agriculture

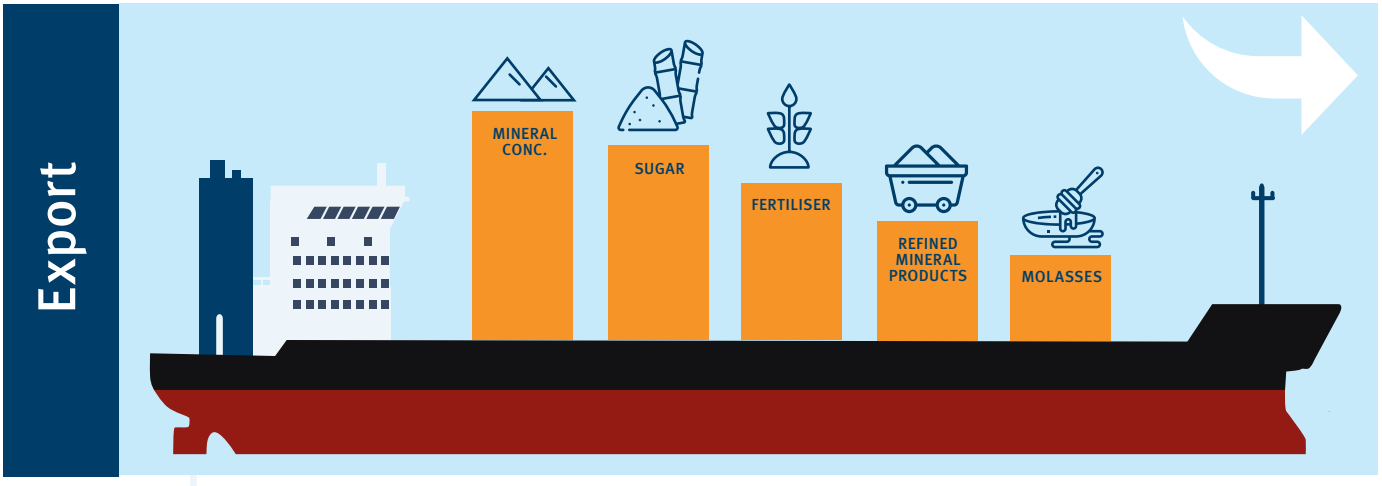
Northern Australia's largest container automotive & general cargo point

**Largest defence base**
in northern Australia

Australia's largest zinc, lead, copper, fertiliser, sugar & molasses port

## Figure 8 — Products and commodities imported and exported through the port



## Defence operations

Australia's defence presence in Townsville is strategically and economically important. The city is a key defence hub for the Royal Australian Air Force Base[6], Lavarack Barracks, and the Ross Island Barracks. The port provides essential strategic infrastructure for Australian Defence Force (ADF) operations as it provides access for domestic and overseas naval vessels to military bases and training areas. This supports ADF operational requirements and capabilities in northern Australia.

The ADF and the Port of Townsville have a 25-year agreement which provides ADF with priority access to Berth 10 and mechanisms to continuously review scheduling, usage and future requirements. The port has significant scope and potential to support greater defence operations and basing capability in coming decades. It is important to safeguard this long-term opportunity for Australia's defence and security requirements which supports a large number of direct and indirect jobs in the region.

## Cruise shipping and tourism

North Queensland's natural wonders include tropical islands, rainforests, beaches, and the Great Barrier Reef. The port provides a vital link for the tourism industry by providing berthing for cruise ships, which is projected to increase significantly at Townsville. The port also provides for passenger and vehicle transport services to and from Magnetic and Palm Islands which are important regional tourist destinations. As a result, tourism supports a large number of regional jobs and contributes close to $500 million to Townsville's economy.


Cruise ship coming into port

# Great Barrier Reef

The Great Barrier Reef is one of the natural wonders of the world and was inscribed on the World Heritage List in 1981 in recognition of its OUV. The International Union for Conservation of Nature evaluation stated that '*... if only one coral reef site in the world were to be chosen for the World Heritage List, the Great Barrier Reef is the site to be chosen*'.

The priority Port of Townsville operates within the GBRWHA, so it is important that port-related development is managed to protect the environmental values of the Great Barrier Reef. Port activities were specifically recognised by the UNESCO WHC as an existing, long-established ongoing activity within the GBRWHA in the retrospective statement of OUV.

In the context of the master planned area, the marine environment of the GBRWHA supports a range of species, dugong habitat, fish nurseries, seabird, wader and raptor habitats, seagrass and mangrove communities, and fringing reefs. Within the GBRWHA are the Great Barrier Reef Marine Park (GBRMP) (Cwlth) and the Great Barrier Reef Coast Marine Park (GBRCMP) (Qld), as well as declared dugong protection and fish habitat areas in Cleveland and Bowling Green Bays and around Magnetic Island.

Around 99 per cent of the GBRWHA lies within the GBRMP and the GBRCMP which provides protection for Queensland tidal lands and waters. Both the Commonwealth and state governments have shared legislative responsibilities for the GBRWHA, while the state government has jurisdictional responsibility within coastal waters of the GBRWHA that are outside the GBRMP.

In accordance with the Ports Act, the OUV of the GBRWHA must be an intrinsic consideration in managing port-related development within the master planned area. The master planning approach achieves this objective by:

- recognising where existing regulatory processes provide for the protection of OUV
- identifying the local attributes of OUV, associated environmental values, and their contribution classifications to the OUV of the GBRWHA, within and surrounding the master planned area (refer to **Part D** and **Appendix E**)
- identifying potential impacts on the OUV of the GBRWHA from development in the master planned area
- stating EMF objectives to manage the OUV of the GBRWHA
- considering the principles of ESD and contributing to wider actions under the Reef 2050 Plan.

In addition to its environmental values, the Great Barrier Reef is important for the Queensland and Australian economies. It supports many tourism jobs, as well as generating important social, cultural and economic contributions from fishing, recreational, and scientific activities in the region.

## Cumulative impact management

The management of system-wide cumulative impacts on the Great Barrier Reef is important to ensure continuous improvement in managing potential threats to the Great Barrier Reef. These threats include rising ocean temperatures, ocean acidification, and land-based run-off. The Queensland Government has committed to 'Protect the Great Barrier Reef' as one of its key priorities identified in *Our future state: Advancing Queensland's Priorities*.

The Queensland Government is managing cumulative impacts on the Great Barrier Reef through a range of policy initiatives. This includes strengthened vegetation clearing legislation, the introduction of a single-use plastic bag ban, regulating activities which contribute to water pollution, and introducing the Maintenance Dredging Strategy and guidelines to provide for sustainable, leading practice management of port-related maintenance dredging.

The protection of the Great Barrier Reef and cumulative impact management is also a central concept in Queensland's environmental assessment and planning systems. This includes the environmental impact assessment processes and state and local planning processes as described in the 'regulating port operations' section.

Master planning complements existing assessment processes and does not replace or remove existing requirements. The EPBC Act assessment process requires an action that is likely to have a significant impact on a MNES (which includes the Great Barrier Reef) to be referred to the Australian Government to determine if assessment and approval is required, including the assessment of cumulative impacts.

The Queensland Government is managing cumulative impacts on the Great Barrier Reef through a range of policy initiatives.

The Ports Act manages the cumulative impact of port development on the Great Barrier Reef at a strategic level by limiting port development across the GBRWHA to four priority ports.

The master plan establishes a strategic approach by constraining port-related development and capital dredging to a defined master planned area. The master planned area limits cumulative impacts by using a precinct-based approach to concentrate development in locations that avoid areas of environmental significance and buffer sensitive receptors. Objectives for specific locations within the master planned area are identified to ensure that impacts on environmental values from development are managed to limit cumulative impacts.

The Ports Act requires that the master plan be reviewed at least every 10 years to provide an adaptive management approach and respond to major changes in policy or legislation, including the Reef 2050 Plan.

# Townsville Port Expansion Project

## Project background

The PEP is a long-term development plan for the port. It includes capital dredging for channel widening and deepening as well as land reclamation to develop a new outer harbour, wharves, and associated infrastructure to support new berths.

The expansion will increase the capacity of the existing shipping channels to allow for safer and more efficient access for larger post-Panamax size vessels. It will create new trading opportunities for the port's existing customers and help attract new users.

The PEP location is shown in **Figure 9**.

## Assessment and approvals

The PEP has been assessed by both the Queensland and Australian governments under separate environmental impact assessment processes.

The PEP was declared as a coordinated project under the SDPWO Act. This process allowed for potential adverse environmental impacts of the project to be evaluated against the requirements of state legislation, which included the Ports Act. On 29 September 2017, the Coordinator-General recommended the project proceed, subject to conditions[7].

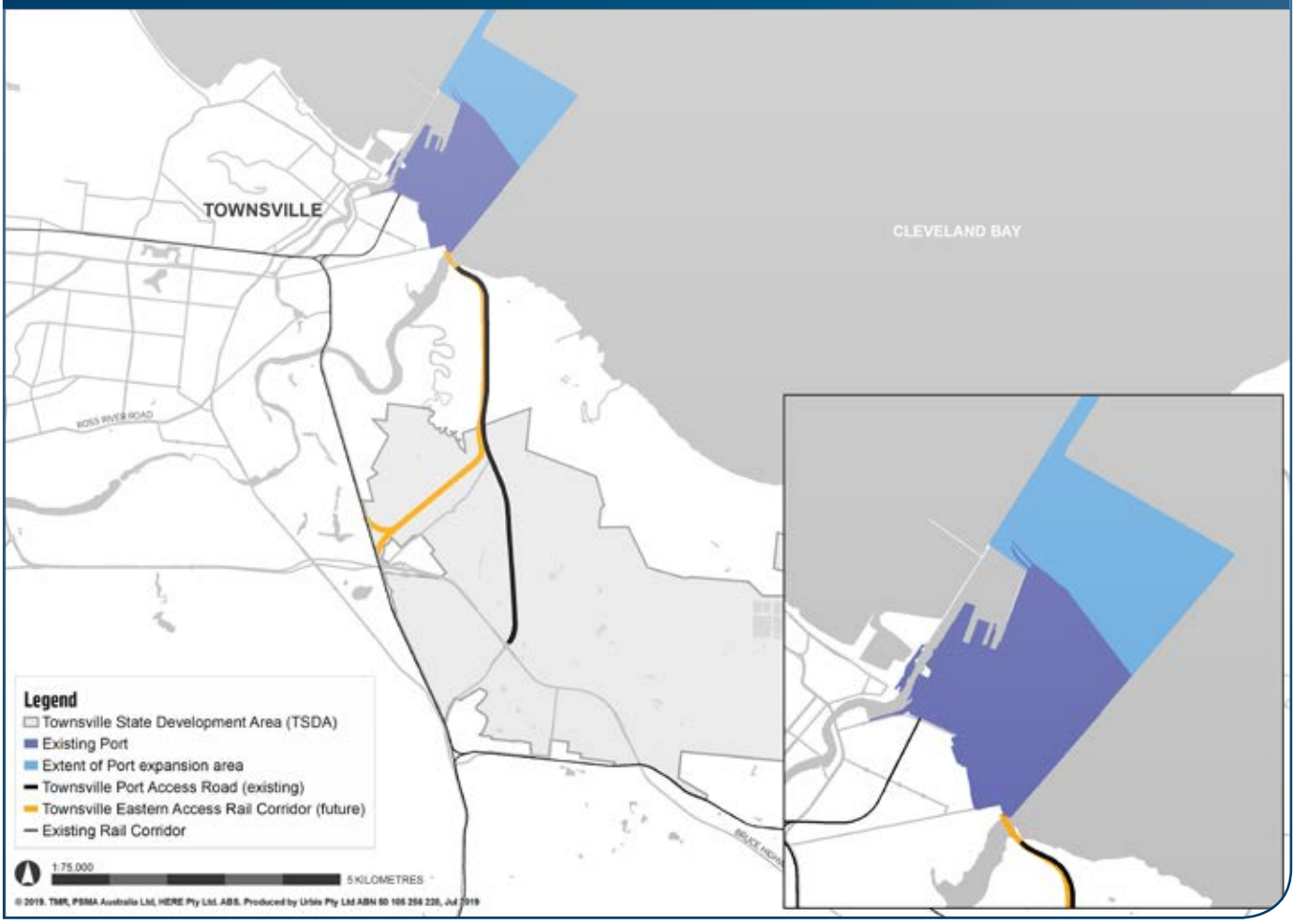
The PEP was also determined to be a 'controlled action' under the EPBC Act due to its potential impacts on MNES. The EIS for the PEP was assessed and approved by the Australian Government on 5 February 2018 to proceed with conditions for capital dredging, land reclamation, and infrastructure construction[8].

It should be noted that while environmental approvals have been obtained, permit requirements and commercial triggers—such as market demand—will need to be satisfied for the project to proceed.

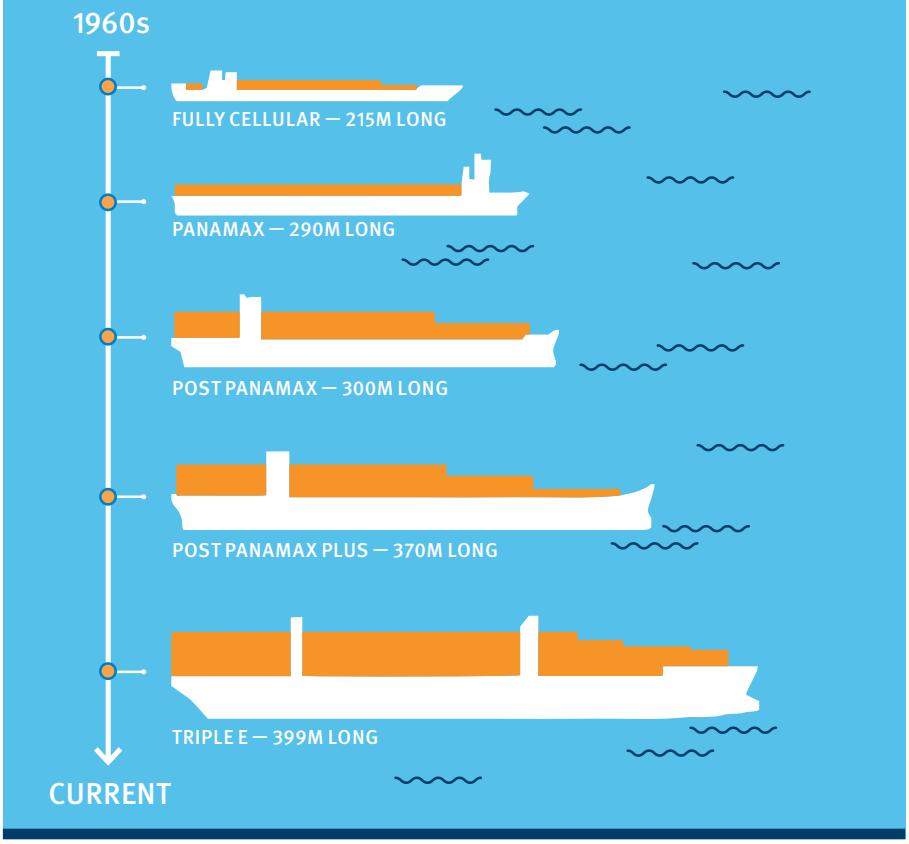
## Potential environmental impacts

The Queensland and Australian governments have completed detailed assessments and approvals of the potential environmental impacts of the PEP, in accordance with legislation.

**Figure 9 — Location of the Port Expansion Project area**



## Figure 10 — Trends in ship sizes





Vessel arrives on Berth 4


Naval vessel

This provides certainty that environmental impacts have been fully considered and will be controlled through conditions on development.

The approval conditions issued by the Commonwealth Government for the PEP include specific measures to manage the impacts on MNES and the OUV of the GBRWHA. The conditions are legally enforceable management measures that apply to construction and operational activities. This ensures that unacceptable impacts on environmental values do not occur. The approval conditions can be found on the Commonwealth Government Department of Environment and Energy website[9].

A port-wide environmental risk assessment was undertaken during the master planning process that considered the assessment processes for the PEP to manage potential impacts on environmental values. The risk assessment recognised that existing assessment processes provide for the detailed consideration of potential impacts on environmental values and that approval conditions have been applied to mitigate the impacts of the development.

The approval conditions build upon POTL's research and monitoring commitments as agreed with the Australian Government and relate to the consequences of sea disposal activities on the marine environment. The research and monitoring commitments build on existing knowledge and work to identify and close knowledge gaps in a range of areas including sediment and resuspension, turbidity, plume mapping, fauna and habitat mapping and hydrodynamics.

## Capital dredging

Capital dredging has been assessed by the Coordinator-General in accordance with state legislation and the Australian Government against EPBC Act requirements. The state and Commonwealth conditions provide for capital dredging to occur with requirements to manage environmental impacts. This provides certainty that the environmental impacts have been fully considered and controlled through development conditions. The conditions include establishing a technical committee to oversee dredging works, the preparation of dredge management plans, undertaking environmental monitoring for matters including water quality, marine fauna, seagrasses and corals, and the delivery of offsets to achieve a net benefit for the OUV of the GBRWHA.

The conditions set out in the Townsville PEP – Coordinator-General's Evaluation Report and the EPBC Act approval, also provide for the beneficial reuse of capital dredged material to create additional port land consistent with requirements under s. 37(2) of the Ports Act.

The master plan is consistent with the assessed and approved footprint of the PEP.

Aerial of the Port of Townsville and the Townsville State Development Area

## Townsville State Development Area

The TSDA, declared in 2003, is a defined area of land dedicated for industrial development of regional, state and national significance. It is located two kilometres from the Port of Townsville with direct connections to major road and rail networks and the port. The TSDA provides supporting infrastructure and opportunities for manufacturing businesses, minerals processing, logistics operators and storage facilities, to support economic development of the greater Townsville region, including the Port of Townsville.

A new and enhanced development scheme for the TSDA came into effect in May 2019 following a comprehensive review by the Coordinator-General. Changes to the TSDA development scheme include the streamlining of development assessment processes, reducing the number of precincts to reduce complexity and improve clarity around expected development, and a range of minor changes to precinct boundaries to reflect updated environmental constraints mapping.

## Townsville Eastern Access Rail Corridor

The proposed TEARC will comprise 8.3 kilometres of new single, narrow gauge track from Cluden, through the TSDA, connecting with the TPAR infrastructure corridor to accommodate rail access for longer trains. Delivery of the TEARC Detailed Business Case is identified in the Townsville City Deal and supported by the Australian Government, Queensland Government, and Townsville City Council.

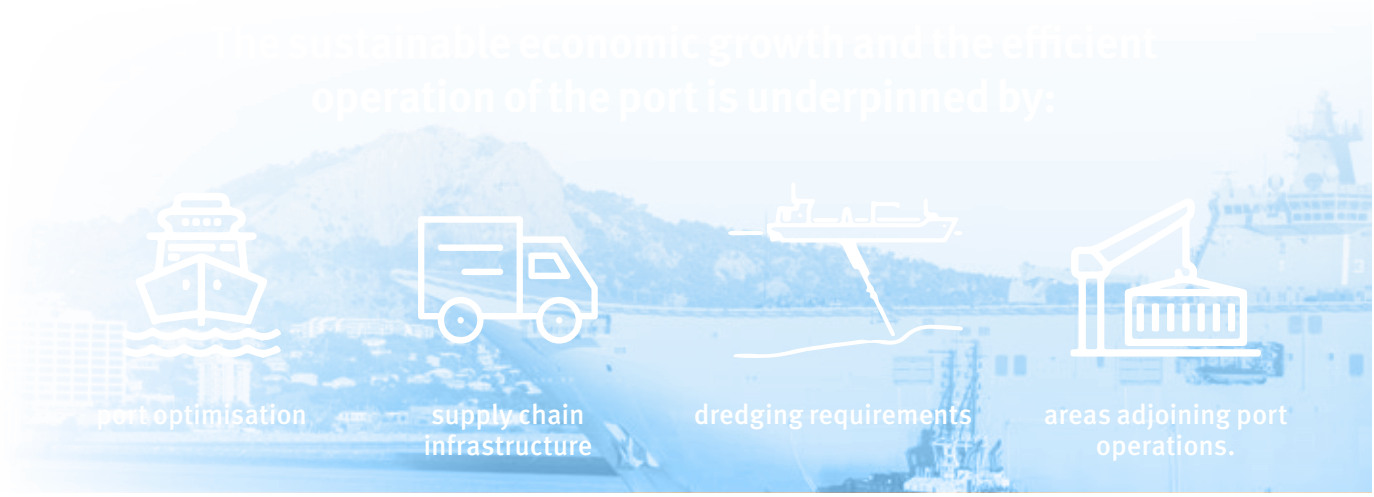
The TEARC Detailed Business Case, prepared by Building Queensland, considered the new rail corridor and associated works to connect trains directly into the port without travelling through South Townsville. The Queensland Government has approved corridor protection actions to preserve the TEARC corridor with implementation pending future demand for additional supply chain capacity.

The TEARC project has been identified as critical enabling infrastructure in the short-to-medium term to support the optimal port layout and the PEP. This will improve the efficiency of the port network, minimise the interaction between the road and rail network, enhance safety outcomes, maintain port competitiveness, and support the regional economy.

Rail track sidings

# Managing sustainable growth

Port optimisation and supply chain infrastructure, including capital and maintenance dredging, are critical to the long-term sustainable growth of the port.




## Port optimisation

The Port of Townsville is a critical component of a global and domestic supply chain that enables the efficient movement of freight from producers to consumers, both domestically and worldwide. Port optimisation is a key objective in the efficient planning and operation of port infrastructure and activities which support the sustainable growth of the port, and improve economic, environmental and social outcomes.

The port relies on the region's integrated infrastructure network to operate efficiently. This network comprises road, rail, marine, and other transport infrastructure, telecommunications, water and gas pipelines, electricity generation, and transmission assets. The infrastructure network supports economic productivity and is a critical factor in optimising the movement of goods through the port to industries and consumers.

There are a variety of factors that can promote or hinder optimisation initiatives. The Queensland and Australian governments have released policy and planning documents that consider public and private opportunities for optimisation at the planning and investment stages of projects and initiatives.

At a national level, the *Australian Infrastructure Plan* seeks to improve the efficiency of infrastructure networks to drive greater sustainability. This approach is embedded in Queensland Government policies, plans and project assessment frameworks which focus on maximising the use of existing infrastructure and planning for smart solutions for new infrastructure.

At the state level, the SIP outlines the Queensland Government's preference for state agencies to actively consider all opportunities to extend the life of existing assets before capital expenditure is allocated to build new infrastructure. The TCP builds on the strategic direction set by the SIP and includes an investment prioritisation hierarchy that focuses on optimising existing infrastructure before investing in new infrastructure.

Leading practice optimisation will vary depending on the location, nature of the matter, or type of infrastructure being considered. No single approach or technology can be applied in all situations. The relevant environmental, social, or economic considerations will dictate appropriateness and likelihood of success.

Efficient vessel movements also play an important role in port optimisation by ensuring that vessels safely navigate the inner port harbour, channels, anchorages, and pilotage areas. The *Port Procedures and Information for Shipping – Port of Townsville* issued by the Regional Harbour Master under the *Transport Operations (Marine Safety) Act 1994*, provides direction to all ship owners, masters, and other persons to ensure maritime safety, and minimise potential environmental impacts.

Newly upgraded Berth 4 quay-line

## Figure 11 — Port of Townsville sustainability initiatives

### Environmental custodianship

- ISO 14001 Environmental Management System accreditation since 2007
- Long-Term Maintenance Dredging Management Plan (2019-2029)
- Maintenance dredging Technical Advisory Committee since early 1990s
- Routine sediment monitoring within the port and Cleveland Bay since 1998
- Water quality monitoring sites since early 2000s and real-time water quality buoys in Cleveland Bay since 2017
- Real time air quality monitoring since 1994
- Defined air quality conditions for bulk handling at the Port of Townsville
- Eight hectares of dedicated community parklands to buffer port activities from surrounding areas

### Research partnerships

- National Environmental Science Program research partnership with Australian Institute for Marine Science (AIMS) and James Cook University (JCU) in Cleveland Bay
- Annual seagrass monitoring program with JCU/Tropical Water and Aquatic Ecosystem Research (TropWater) since 2007
- Marine water monitoring site and data sharing with AIMS and Great Barrier Reef Marine Park Authority
- Port of Townsville is the first port to partner with Biosecurity Queensland to implement an early warning marine pest pilot project using DNA analysis. This initiative builds on more than 18 years of marine pest monitoring by the port.

### Community investment and partnerships

- Port Community Liaison Group
- Local Marine Advisory Committee
- Partner of Museum of Underwater Art
- Townsville Cruise and Magnetic Island tourism member
- Sponsor of Townsville Maritime Museum
- Gurambilbarra / Wulgurukaba Workforce Development Plan
- Intern and work placement opportunities with JCU and Tec-NQ

# Port supply chain optimisation

The Port of Townsville is a key gateway for the logistics chains connecting northern Australia to the world. The port is continuously working to deliver cost effective solutions to support cargo growth and diversification. This has required significant investment to modernise infrastructure to accommodate changing shipping needs, facilitate more efficient port operations and prepare for the future transport needs of North Queensland.

Investment in optimisation has included consolidation of port activities, quay-line improvements, shipping channel upgrades, and preparation of a detailed business case for potential development of a new intermodal rail terminal. All of these initiatives are expected to significantly improve connectivity for sea and land-based freight logistics chains.

The port has, for a number of years, been working to optimise its crucial role connecting land and sea-based freight logistics chains, including consolidation of port activities, redeveloping inner harbour berths, modernising port infrastructure and the construction of the Townsville Port Access Road to divert freight movements off city streets. Capital works and operational initiatives will continue to improve the efficiency of port operations and optimise supply chain infrastructure. These support the long-term sustainable development of the port consistent with the strategic intent of the master plan.

## Channel Upgrade Project

The Channel Upgrade Project is jointly funded by the Port of Townsville Ltd and the Queensland and Australian governments. It is the first stage of the port expansion project which is a 30-year strategic redevelopment plan for the port.

Channel widening will increase the capacity of the shipping channels accessing the port and promote regional economic growth. This will ensure that the port remains globally competitive in the context of global shipping trends towards larger vessels. It will mean larger vessels with more efficient freight carrying capacity can safely access the port and reduce the need for freight to arrive elsewhere in Australia and be transported back to North Queensland by road or rail.

Material generated from the channel widening will be beneficially reused to create a new area for the port to grow into. The creation of this new area will facilitate the evolution of the port layout enabling improved supply chain integration with port operations. Examples of this include new staging areas to coordinate heavy vehicle movements, and the planned co-location of related industries and facilities. This will deliver greater efficiencies for the movement of freight through the port and a potential reduction to interface impacts with surrounding areas.

## Berth 4 Crane and Cargo Terminal project

A full upgrade of the inner harbour berth has resulted in a continuous quay-line that can now accommodate larger vessels and more flexible berthing options for different sized vessels. The addition of ship-to-shore cranes and cargo handling infrastructure, combined with a new container terminal has significantly increased operational efficiency. The project has doubled the capacity of Berth 4 and increased port throughput capacity.

## Rail intermodal terminal

Subject to the finalisation and Queensland Government consideration of the business case, the construction of a common-user rail freight intermodal terminal at the port will optimise handling of goods, providing time, cost and efficiency benefits for moving freight, and reducing high up-front infrastructure costs.

The new facility is expected to be located on land reclaimed by beneficial reuse of dredged material and designed to achieve modal shift from road to rail. Multiple logistics companies should be able to offer supply-chain services because the intermodal terminal offers greater flexibility for the import or export of products.

The terminal will complement investment in other cargo storage and handling facilities at the port and boost the efficiency of containerised freight movement on the MIRL through quicker train-to-ship transfers.

**Figure 12 — Port of Townsville freight paths**


## Supply chain infrastructure

The efficient operation and protection of supply chain infrastructure supports the role of the port as the first and last mile of the regional transport network, which operates 24 hours a day, every day of the week. Supply chain infrastructure comprises a network of road, rail and marine-based infrastructure connecting the port to domestic and international economic markets.

Supply chain infrastructure assists goods to transit through the port efficiently and is critical to the effective operation of the port network and regional industries. Supply chain corridors benefit from direct and unimpeded access to destinations through an integrated transport network and provides opportunities for increased trade to service the catchment and industry.

The supply chain infrastructure supporting the port within the horizon of the master plan is summarised in **Table 1.**

New or upgraded supply chain infrastructure which increases the capacity and efficiency of the infrastructure networks servicing the port, will support increased levels of trade and enhance economic opportunities. These will also allow the port to take advantage of coastal shipping opportunities.

## Dredging requirements

The Ports Act restricts port-related capital dredging to within a master planned area for a priority port and mandates the beneficial reuse of material generated from capital dredging. Capital dredging includes creating or enlarging channels, basins and berths, foundation works, and trenching. Capital dredging is different to maintenance dredging, which involves removing mobile natural sediments that have accumulated in the existing navigation channels, berth pockets, approaches, and swing basins to maintain existing approved dredging areas, and ensure continued safe navigational movement of vessels.

### Capital dredging

Capital dredging is required to expand the capacity of the port by allowing the safe and efficient movement of larger vessels, and increased vessel movements through Cleveland Bay.

Subject to obtaining all necessary state and Commonwealth permit approvals, the Ports Act allows capital dredging within the master planned area providing the material generated is beneficially reused. Beneficial reuse is the practice of using dredged material for a purpose that provides social, economic, or environmental benefits (or a combination of these). This means dredged material is managed as a valuable resource rather than a product destined for disposal.

Future port-related capital dredging cannot occur outside the master planned area. Capital dredging will only occur within defined operational port areas such as the Marine infrastructure precinct (refer to **Part C**). The extent of capital dredging anticipated by the master plan is consistent with the capital dredging that has been subject to detailed assessment by the Queensland and Australian governments as part of the PEP.

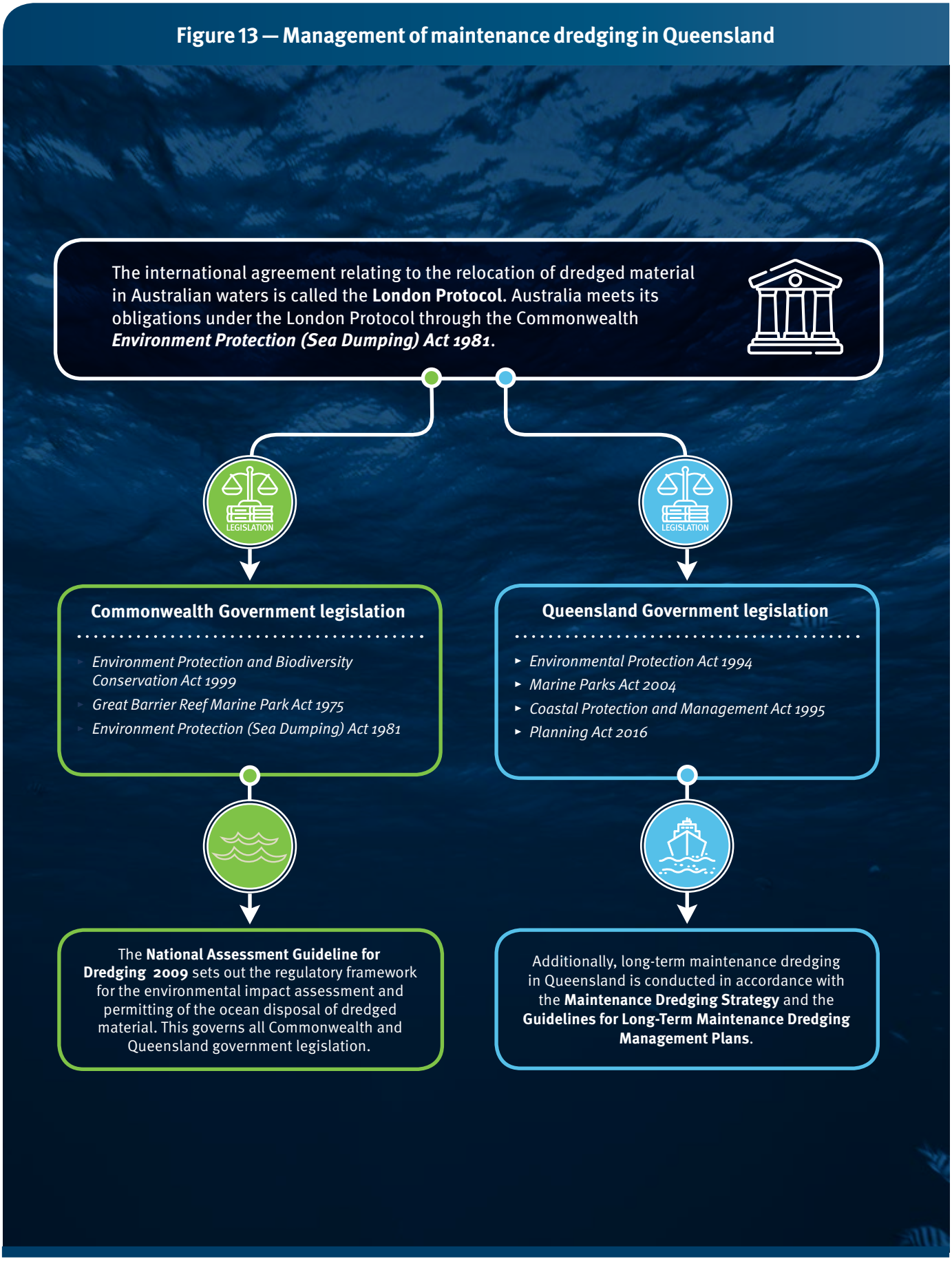
### Maintenance dredging

Maintenance dredging is required to remove natural sediments that accumulate in shipping channels. Maintenance dredging is essential to facilitate safe passage of vessels and for the optimal use of the channels, swing basins, and berths. Without maintenance dredging, navigation channels would become shallower, and restrict the safe passage of vessels, and impact on the efficient operation of the port and associated supply chains.

Maintenance dredging and the sea-based placement of dredged material is regulated by a comprehensive approval

| Table 1 — Supply chain infrastructure | | | |
|---|---|---|---|
| **Type of supply chain infrastructure** | **Supply chain infrastructure** | **Function** | **Significance** |
| **Road** | Townsville Port Access Road | Connects the Bruce Highway and Flinders Highway (Stuart Bypass) to the port. Future duplication may be required as port trade increases. | Primary freight road link into the port for B double and type 2 road trains. |
| | Bruce Highway | Connects the port to points north and south along Queensland's east coast as part of the national road network. | Queensland's primary eastern highway. |
| | Flinders Highway (Stuart Bypass) | Connects the port to the western regions, key resources, and agricultural operations in Queensland and the Northern Territory. | North Queensland's primary western highway. |
| | Other local and state road networks, such as Boundary Street and the Townsville ring road | Provides connection for regions to the Port. | Key to connecting major port road networks with existing highways and haulage routes. |
| **Rail** | MIRL | Connects the port to the North West Minerals Province and Phosphate Hill. | Primary line used by the port's minerals and agriculture supply chains. |
| | North Coast Line (NCL) | Connects Townsville to Cairns and Brisbane. | Primary line along the Queensland coastline. |
| | TEARC (proposed) | Future rail line from the MIRL and NCL south of Townsville, parallel to the TPAR and into the port. Redirects rail freight away from urban areas and at-grade crossings. | Critical to allowing longer trains to enter the port and increase port operational efficiency . |
| | Two Intermodal Rail Terminals (Stuart) | Provides intermodal connectivity to the TPAR linked to the NCL and the MIRL. | Major road-to-rail facilities for port industry within local rail and road freight network. |
| | Port of Townsville (Jetty) Branch Rail Line | Connects the sidings, cargo handling, and storage facilities within the port to the external rail network. | Major line connecting the NCL and MIRL to the port facilities. |
| **Marine** | Arrival, Sea and Platypus channels (future widening and deepening) | Navigation channels provide safe passage for vessels through Cleveland Bay. | Critical for vessel access into and within the port. |
| | Jetties, breakwaters, berth pockets, swing basins and wharves situated within the port and Cleveland Bay | Infrastructure required for effective and efficient port operation. | Critical infrastructure and facilities for vessel access into and within the port. |
| | Pilotage areas, anchorages, lead lights, and vessel traffic service areas | Maritime areas providing for safe and efficient movement of vessels. | Vital to ensure the safe and efficient shipping operations. |
| **Port (land side)** | Gantry cranes, storage facilities, internal road/rail, linear infrastructure (conveyors, pipelines) and trunk infrastructure networks (such as power, water, and waste) | Provides for cargo handling, storage and transport of goods within the port. | Critical for ongoing efficiency of port operations. |
| | Port intermodal rail terminal (proposed subject to business case and government approvals) | Provides intermodal connectivity within the port linked to the NCL and the MIRL. | Common user terminal to boost the efficiency of containerised freight movement through quicker train to ship transfers. |
| **Other** | Multiple road to rail access points | Provides intermodal connections for port-related industries. | Important to ensure efficient access for loading and unloading of goods at many points along the rail corridors. |

## Figure 13 — Management of maintenance dredging in Queensland



system by both the Queensland and Australian governments in accordance with international agreements, and the requirements of state and Commonwealth regulators (see **Figure 13**). The master plan does not modify the regulatory requirements that apply to maintenance dredging which involve separate regulatory processes and consultation requirements.

### Dredge material placement areas

The material derived from maintenance dredging at the Port of Townsville may be placed at sea or on land in accordance with state and Commonwealth regulations. Sea placement of maintenance dredge material within Cleveland Bay has been undertaken at several locations since the establishment of the port.

The current dredge material placement area (DMPA) has all state and Commonwealth approvals and was assessed as delivering state and Commonwealth regulatory requirements. It is located within state (lower section within port limits) and Commonwealth (northern extent outside port limits) waters outside the GBRMP (see **Figure 20**).

The master plan does not restrict the consideration of alternative sites for the placement of maintenance dredged material. Any proposal to relocate the DMPA will need to meet all state and Commonwealth regulatory requirements which involves a process independent of the master plan.

## Areas adjoining port operations

Managing the interface between the port and adjacent urban areas is important to ensure that the redevelopment of the Townsville waterfront can proceed without compromising the efficient operation of the port, while also protecting the safety and wellbeing of communities located close to the port.

Future development at the following locations is supported by the master plan providing that the interface with port operations is appropriately managed:

- the Townsville Entertainment and Convention Centre
- land adjacent to the port at the eastern end of Palmer Street
- land within the Townsville City Waterfront Priority Development Area adjacent to the port.

It is important that development within these areas is designed and constructed to mitigate potential reverse amenity impacts that may conflict with port operations, particularly berths and land used by industry and defence. Similarly, port operations should be located, designed and operated to minimise potential adverse amenity impacts on adjacent urban areas.

### Port of Townsville Long-term Maintenance Dredge Management Plan

POTL has developed a LMDMP to meet the requirements of the *Maintenance Dredging Strategy* and *Guidelines for Long-Term Maintenance Dredging Management Plans*. The LMDMP (2019-2029) has a long-term focus of 10 years with a minimum five yearly review framework, to address state and Commonwealth approval requirements.

The LMDMP creates a framework for continuous improvement in the environmental performance of maintenance dredging, including minimising dredging requirements where possible. The plan analyses historical and future dredging requirements, considers sediment characteristics and recognises the OUV of the GBRWHA.

Under the LMDMP, an environmental management plan is prepared to monitor environmental management activities for each maintenance dredge campaign. The effectiveness of actions to achieve ecological, social or economic outcomes in accordance with state and Commonwealth regulatory requirements is also assessed. The environmental management plan will be updated to include improvements and support leading practice maintenance dredging activities in a GBR context.

For the placement of dredged material, the plan examines beneficial reuse opportunities and placement options in the context of environmental, operational, economic and legislative requirements. POTL will continue to undertake baseline, impact, and real-time environmental monitoring, to ensure any material placement options are properly assessed in accordance with leading environmental practice.

POTL's Technical Advisory and Consultative Committee, established in the early 1990's, provides independent oversight of the planning and monitoring process for maintenance dredging.

## Long-term strategic vision for the master planned area to 2050

The priority Port of Townsville will be a major driver of economic growth as North Queensland's primary freight, logistics, container, tourism, and defence infrastructure hub. Sustainable port development at the priority Port of Townsville will contribute to the protection of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area within and surrounding the master planned area by managing potential impacts on environmental, social, and cultural values.

# Part B: Strategic vision, objectives and desired outcomes

## Strategic vision

Long-term strategic vision for the master planned area to 2050:

*The priority Port of Townsville will be a major driver of economic growth as North Queensland's primary freight, logistics, container, tourism, and defence infrastructure hub. Sustainable port development at the priority Port of Townsville will contribute to the protection of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area within and surrounding the master planned area by managing potential impacts on environmental, social, and cultural values.*

## Objectives

The objectives for the master planned area identify how the strategic vision will be achieved and alignment with state interests. Objectives may align with more than one state interest.

**Table 2 — Objectives**

| State interest | Objectives |
|---|---|
| Management of port-related development | **Sustainable growth** – enable the ongoing sustainable growth of trade through the priority Port of Townsville. |
| | **Safe navigation** – maintain and enhance the safe operation of the port's navigable waterways. |
| | **Efficient operations** – maintain and enhance the efficient and effective operation of the port. |
| | **Effective land use** – continue to use and develop land and marine infrastructure effectively. |
| | **Operational integration** – continuous optimisation of the nature and location of port operations to minimise off-site impacts and to improve integration with surrounding land uses. |
| Economic | **Economic prosperity** – continue to facilitate the economic growth of the state and support the north and the north-west regions of Queensland. |
| Environment | **Protecting the GBRWHA** – avoid, minimise, and offset impacts from port-related development on the OUV of the GBRWHA. |
| | **Environmental values** – avoid and minimise impacts from development and associated activities on environmental values within and surrounding the master planned area. |
| Infrastructure | **Supply chain efficiency** – protect land required for supply chain infrastructure to maximise the effective operation of the transport network servicing the port. |
| | **Efficient logistics** – ensure port-related development is located to support efficient operation of supply chain infrastructure and improve road freight transport efficiency by catering for High Productivity Vehicles on road freight routes leading to the port. |
| | **Industrial opportunities** – promote opportunities for the growth of logistics, freight, and complementary land uses at strategic locations. |
| Community | **Safety and security** – provide for the safety and security of people, shipping, and property. |
| | **Community wellbeing** – support the wellbeing of the community in the Townsville region. |
| | **Community access** – provide for recreational use of waterways and public open space. |

# Desired outcomes

The desired outcomes for the master planned area will contribute to achieving the strategic vision and are summarised as follows. Outcomes may align with more than one state interest.

**Table 3 — Desired outcomes**

| State interest | Desired outcomes |
|---|---|
| Management of port-related development | **Port optimisation** – land and marine areas are optimised for port operations and associated industries. |
| | **Capital dredging** – capital dredging is undertaken, where necessary, to support the ongoing operation, expansion, and growth of the priority Port of Townsville. |
| | **Safe navigation** – shipping channels are maintained to provide safe and efficient access for all vessels. |
| | **Maintenance dredging** – maintenance dredging is undertaken to ensure safe and efficient navigation of waterways in accordance with the approved LMDMP and relevant legislative requirements. |
| Economic | **Industrial powerhouse** – land areas, associated infrastructure and facilities are provided to encourage port-related industries of regional, state, national and global significance to locate within the master planned area. |
| | **Regional prosperity** – economic benefit and employment opportunities are provided to Townsville and surrounding regions. |
| | **Extractive resources** – the economic value of extractive resources and other minerals are recognised. |
| Environment | **Beneficial re-use** – material generated from capital dredging is beneficially reused or placed on land where it is environmentally safe to do so. |
| | **Sustainable port development** – protect environmental values, including those that contribute to the OUV of the GBRWHA, by managing port-related development. |
| | **Leading environmental practice** – existing Commonwealth and state legislation, planning processes and policies are addressed to achieve leading practice in a GBR context. |
| Infrastructure | **Supply chain infrastructure** – critical supply chain infrastructure is protected, including the TPAR, TEARC, and connections between land and marine areas. |
| | **Responsive infrastructure** – port and supply chain infrastructure is planned and provided to meet market demand with capacity to adapt to changing technology and cargo trends. |
| | **Optimised infrastructure** – the use of port and supply chain infrastructure is optimised, prior to any expansion or development of new infrastructure, where practicable. |
| | **Avoid encroachment** – encroachment from incompatible uses is avoided. |
| Community | **Built environment** – adverse impacts from port-related development on sensitive uses are appropriately managed and minimised, and sensitive uses do not encroach on port operations. |
| | **Waterfront activation** – appropriate public access to the waterfront is provided where practicable, having regard to existing and future port operational needs, safety and security considerations. |
| | **Cultural heritage** – impacts on cultural heritage values are minimised, in accordance with the cultural heritage duty of care under section 23(1) of the *Aboriginal Cultural Heritage Act 2003*.[10] |

The strategic vision, objectives and desired outcomes provide higher order strategic outcomes applicable across the master planned area which are consistent with the principles of ESD.

# Part C : Master planned area and precincts

## Overview

The spatial extent of the master planned area encompasses land and marine areas needed for the efficient development and operation of the port, and for the management of potential impacts on the OUV of the GBRWHA and other environmental values.

Within the master planned area, precincts have been identified to indicate the long-term intent for port-related development at specific locations.

The boundary of the master planned area has been established to consider and avoid areas that contain significant environmental values. The precinct-based approach has enabled identification of those areas suitable for long-term industrial development and those areas where environmental values are the predominant consideration.

## Master planned area

Under the Ports Act, the master planned area may include land that is outside strategic port land (SPL). This allows for the identification of land and infrastructure outside SPL that is critical to the long-term operation of the port, supply chain infrastructure, and a coordinated planning approach for port-related development.

The master planned area includes land that is already identified in existing planning instruments for future port-related industrial development and supply chain infrastructure. This land provides sufficient area for port-related development to occur within the planning horizon of the master plan to 2050. It is also recognised that within the long-term planning horizon existing industrial areas outside the master planned area, identified under the Townsville City Plan, may also be used for port-related development.

The marine extent of the master planned area is within port limits but outside the state and Commonwealth marine parks. Capital dredging, subject to approvals and permits, will only occur within the master planned area consistent with state and Commonwealth requirements.

The master planned area includes the land and marine areas shown in **Figure 14** and in **Appendix A**. The master planned area covers approximately 16,500 hectares. The land component has an area of 5000 hectares while the marine component covers 11,500 hectares.

The master planned area comprises:

- Port of Townsville SPL, including the approved reclaimed expanded port area
- part of the TSDA
- part of the Townsville City Council (TCC) local government area
- part of the TCWPDA
- marine areas within the Port of Townsville port limits that are not within Commonwealth or state marine parks
- part of the GBRWHA.

Port by night

# Precincts

The precinct-based approach has enabled identification of areas suitable for long-term industrial development and areas where environmental values are the predominant consideration.

The role of precincts is to identify the long-term purpose and intent for specific areas within the master planned area. The precincts provide for the spatial implementation of the master plan. The use of precincts supports cumulative impact management within the master planned area by identifying areas with environmental values where development should be limited, as well as areas that may be suitable for development.

The precinct outcomes apply to specific areas within the master planned area whereas the desired outcomes (identified in **Part B**) apply more broadly to the master planned area.

The EMF objectives outlined in **Part D** provide for the management of potential impacts from development on environmental values within each of the precincts. All of these elements combine to achieve the strategic vision for the master planned area.

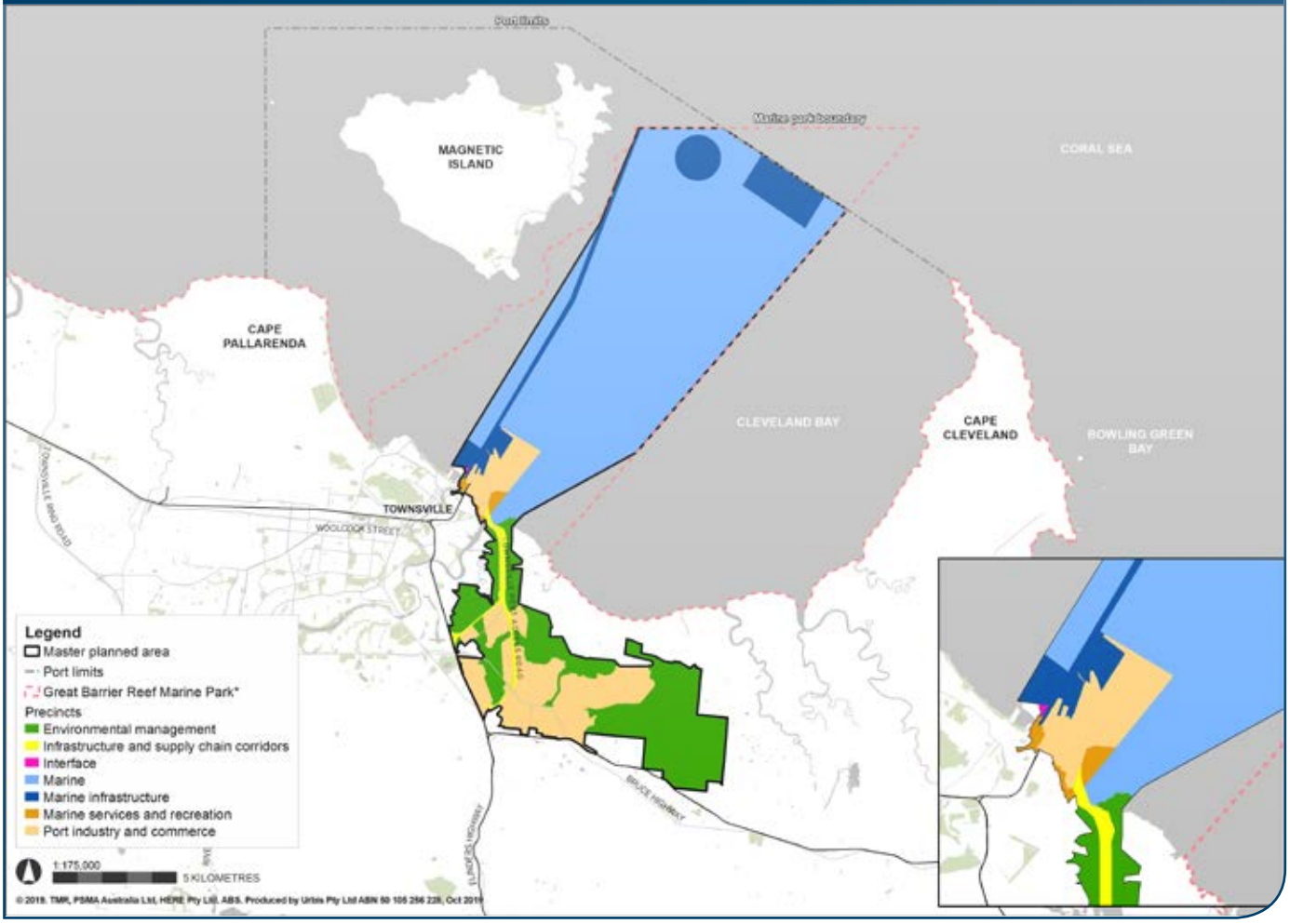
The following precincts are included within the master planned area:

- Environmental management precinct
- Infrastructure and supply chain corridors precinct
- Interface precinct
- Marine precinct
- Marine infrastructure precinct
- Marine services and recreation precinct
- Port industry and commerce precinct.

Each precinct (see **Figure 14**) is explained in the following sections, by describing the:

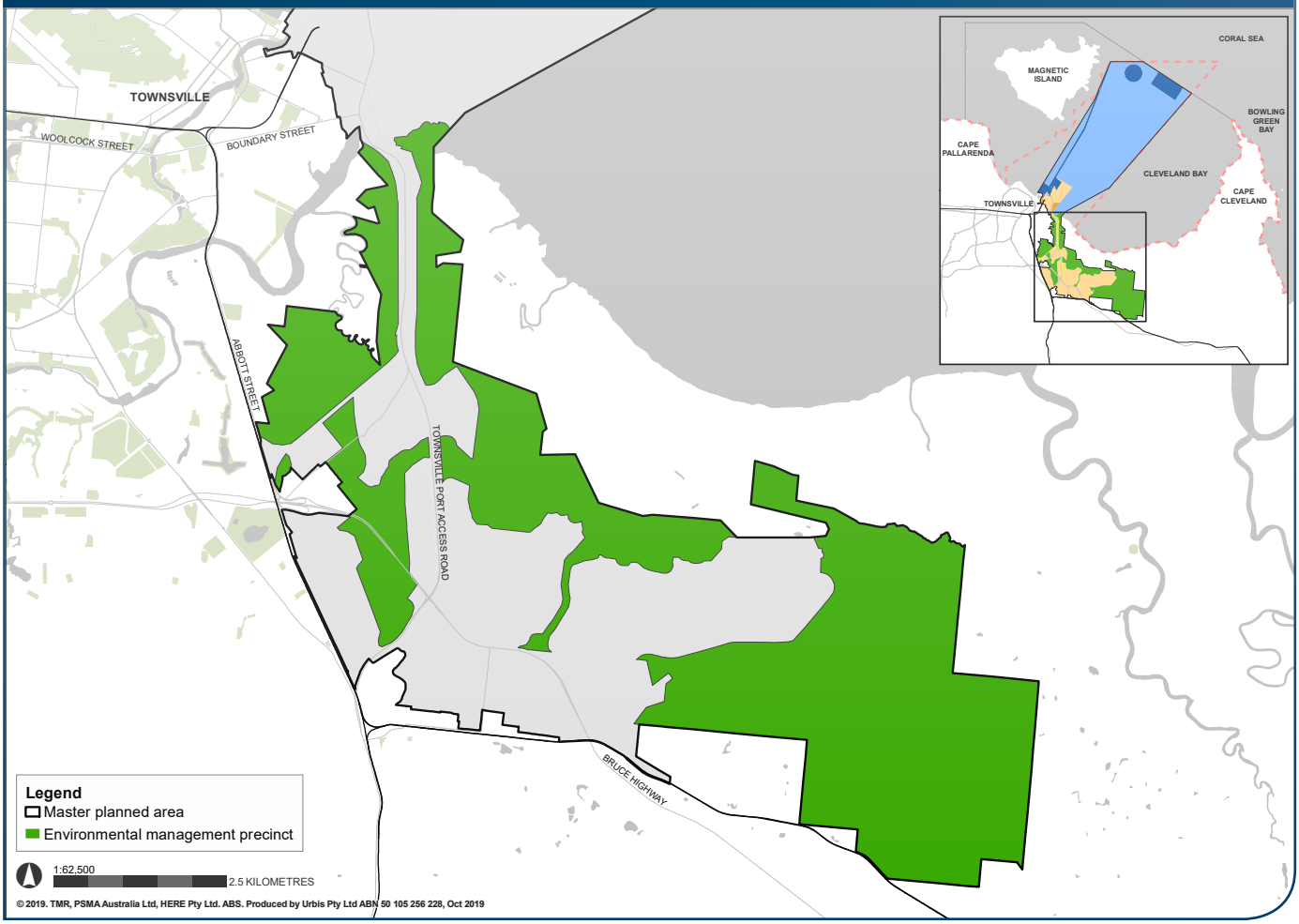
- long-term **purpose** of the precinct
- precinct **description**
- precinct **outcomes**.

**Figure 14 — Master planned area precincts**



# Environmental management precinct

## Figure 15 — Environmental management precinct




## Purpose

The purpose of the **Environmental management precinct** is to limit development and, where possible, avoid adverse impacts on environmental values.

## Description

The precinct comprises land within the TSDA and part of the Townsville City Plan area identified as being of environmental significance. It functions as an environmental buffer between development and intertidal areas with high ecological significance.

## Outcomes

Uses that do not compromise the environmental values of the area may be acceptable.

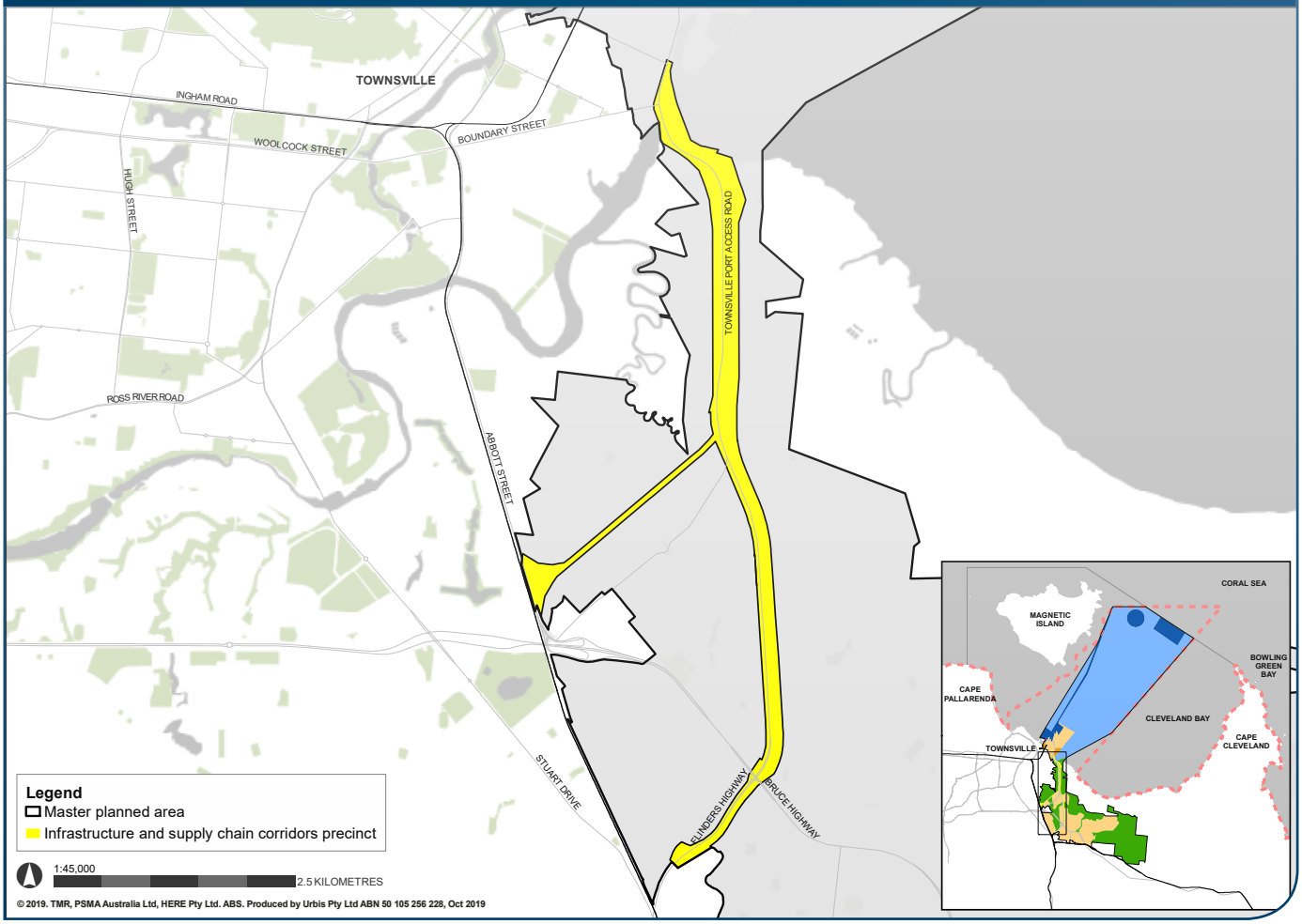
Essential linear infrastructure such as telecommunications and electricity network infrastructure to service adjoining industry may be located in this precinct if no other alternative is available.

Non-essential infrastructure and development may be considered where environmental impacts can be managed to maintain ecological processes.

Extractive industry uses in the identified Muntalunga Key Resource Area (KRA 154) will avoid and minimise impacts on the environmental and cultural heritage values of the Muntalunga Range.

# Infrastructure and supply chain corridors precinct

**Figure 16 — Infrastructure and supply chain corridors precinct**




## Purpose

The purpose of the **Infrastructure and supply chain corridors precinct** is to allow for the provision of the major supply chain corridor infrastructure required to support the ongoing operation and expansion of the port, within the master planned area.

## Description

The precinct comprises land within the TSDA and part of the Townsville City Plan area and includes land containing the TPAR and land reserved for the preferred alignment of the TEARC (including space for possible future port connection for bulk material handling and transportation). It also includes part of the NCL and part of the Flinders Highway (Stuart Bypass).

## Outcomes

Development maintains the safe and efficient operation and management of supply chain infrastructure, including the road and rail transport networks.

Development protects the safety, efficiency and capacity of future rail and road alignments and existing transport corridors.

Infrastructure associated with non-port-related development is limited to necessary minor and interim service infrastructure, including linear infrastructure, utility installations, and telecommunication facilities.

Development optimises the efficient use of land and infrastructure to minimise its footprint.

Development supports the establishment of common user infrastructure where practicable.

Development does not result in reverse amenity impacts on key transport routes critical to the priority Port of Townsville.

Development is to be appropriately located, designed, constructed, and operated to avoid potential adverse impacts on environmental values where possible.

# Interface precinct

**Figure 17 — Interface precinct**


## Purpose

The purpose of the **Interface precinct** is to manage the interface between sensitive land uses or areas where sensitive land uses may be developed adjoining port operations.

## Description

This precinct includes a portion of the western breakwater peninsula currently occupied by the Townsville Entertainment Centre. During the life of the master plan the Townsville Entertainment Centre may relocate, and if this occurs, this land will be available for redevelopment. Given the proximity of this land to the port, future development of the area has the potential to impact on the operation of the port, as well as the future use of this land potentially being impacted by port operations.

## Outcomes

Development does not restrict the operation or development of port activities including supply chain infrastructure.

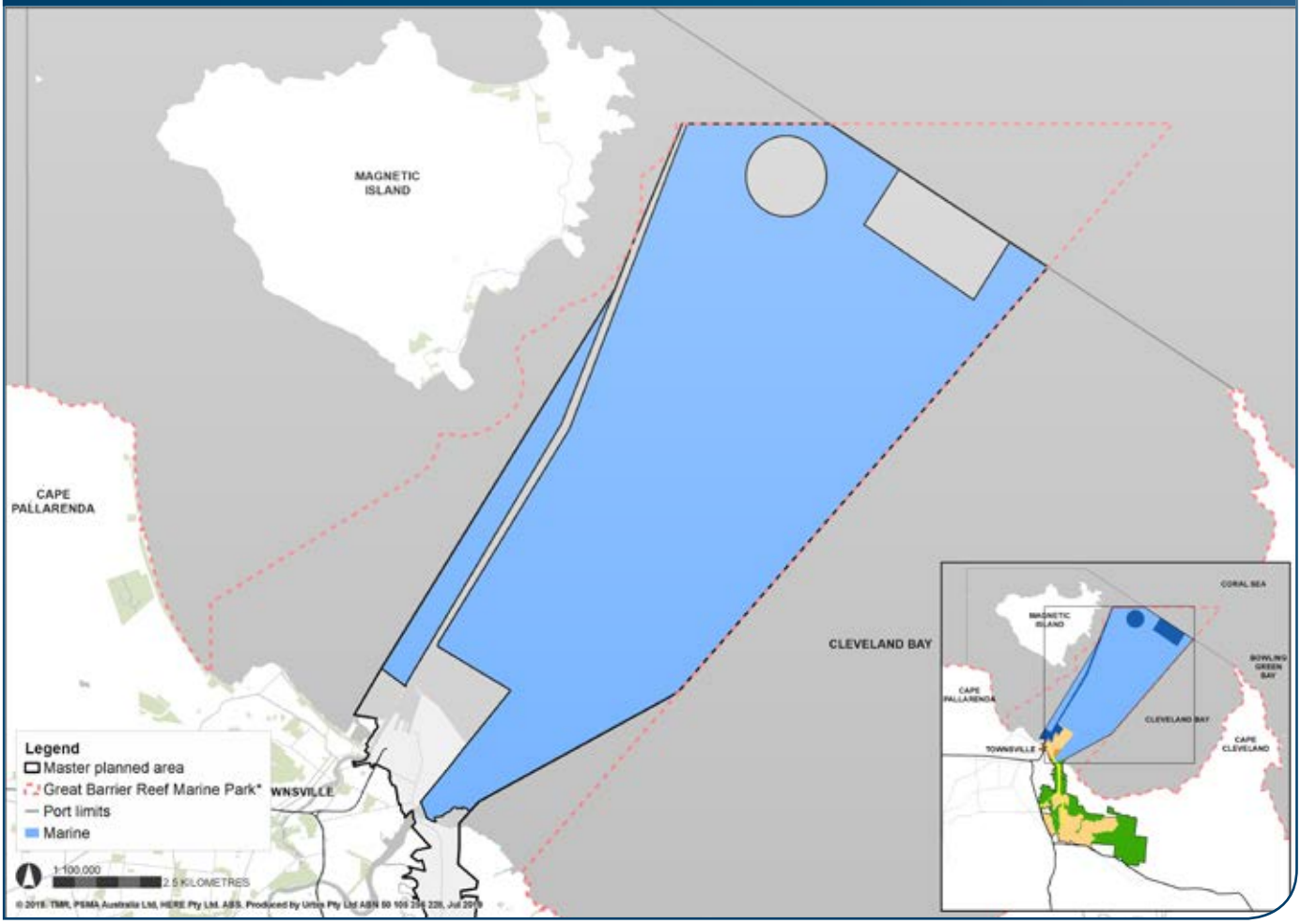
Development must be appropriately located, and incorporate suitable design measures to minimise potential impacts from port operations including:

- orientation and design of development to minimise visual impacts
- built form, including building design, height and materials
- management of emissions, noise, light, odour, and dust.

New development should maintain public access to the waterfront.

# Marine precinct

**Figure 18 — Marine precinct**




## Purpose

The purpose of the **Marine precinct** is to avoid impacts on environmental values and provide for limited port and industry development, and non-port-related marine activities.

## Description

This precinct generally extends to the highest astronomical tide (HAT) and includes marine areas adjoining the marine infrastructure precinct that are not critical to the operation or growth of the port. It includes intertidal and marine waters within port limits in Cleveland Bay that are not within the Great Barrier Reef Marine Park.

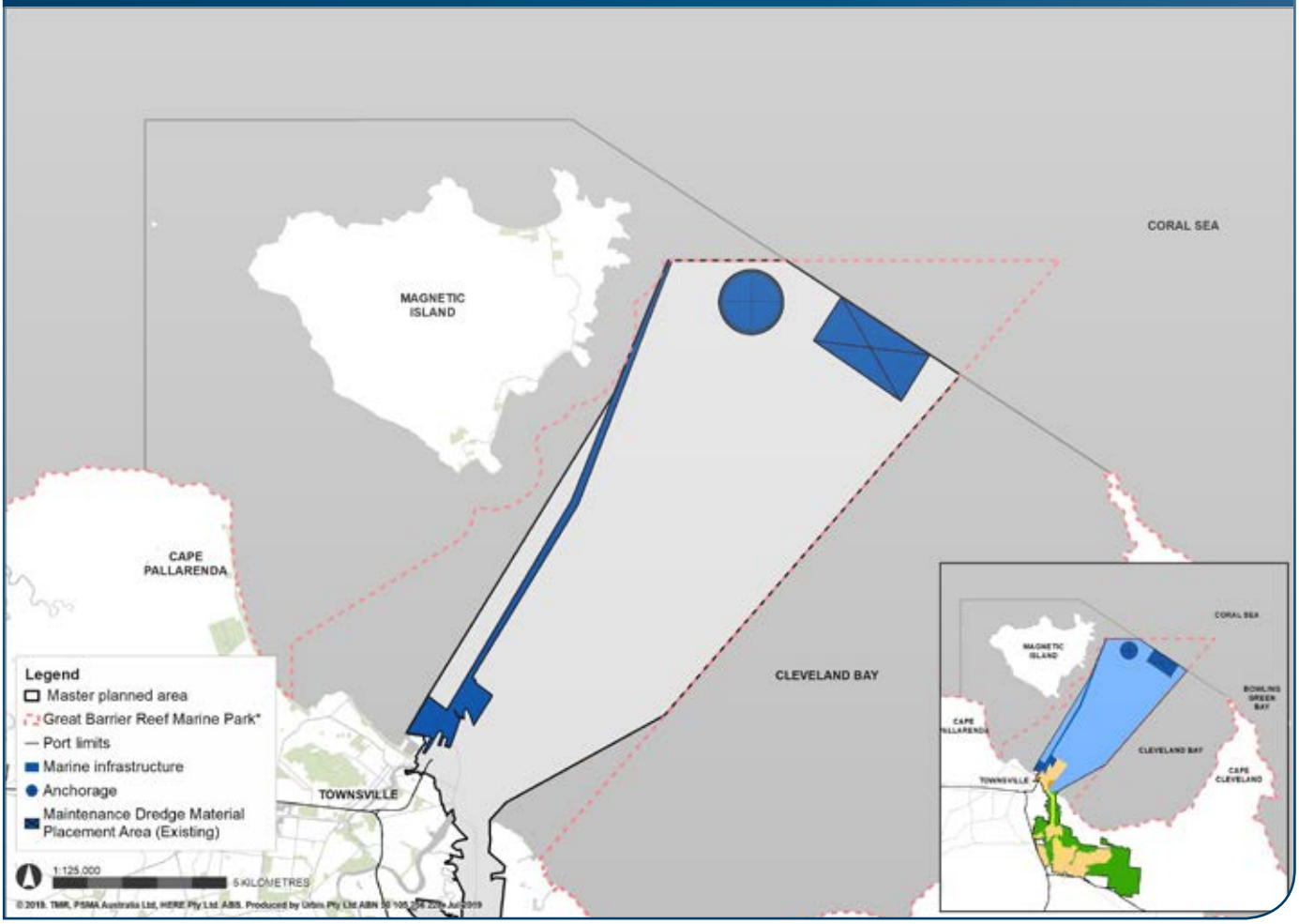
## Outcomes

Uses that do not compromise the efficiency of ship movements may be acceptable, including small scale maritime infrastructure, boat ramps, pontoons and coastal protection structures, coastal rescue services, commercial fishing, tourism, defence, Indigenous marine resource activities, and recreational uses.

Development avoids or minimises impacts on environmental values within and surrounding the master planned area by the appropriate siting and design of compatible uses and infrastructure.

# Marine infrastructure precinct

**Figure 19 — Marine infrastructure precinct**




## Purpose

The purpose of the **Marine infrastructure precinct** is to ensure safe shipping access to navigation channels and waterside areas and to provide for marine-based port infrastructure, including works required to widen and deepen the existing shipping channels to facilitate the sustainable growth of the port.

## Description

This precinct includes the existing shipping channels, swing basins, berth pockets, breakwaters, and the existing maintenance dredged material placement area. Future capital dredging for shipping channels and to create a new outer harbour and berth pockets will occur in this precinct consistent with state and Commonwealth approvals for the Port Expansion Project.

This precinct generally extends to the HAT and includes:

- the marine area surrounding the port berths
- the shipping channels (Platypus and Sea)
- part of the maintenance dredged material placement area
- part of Ross Creek
- breakwaters and anchorage.

## Outcomes

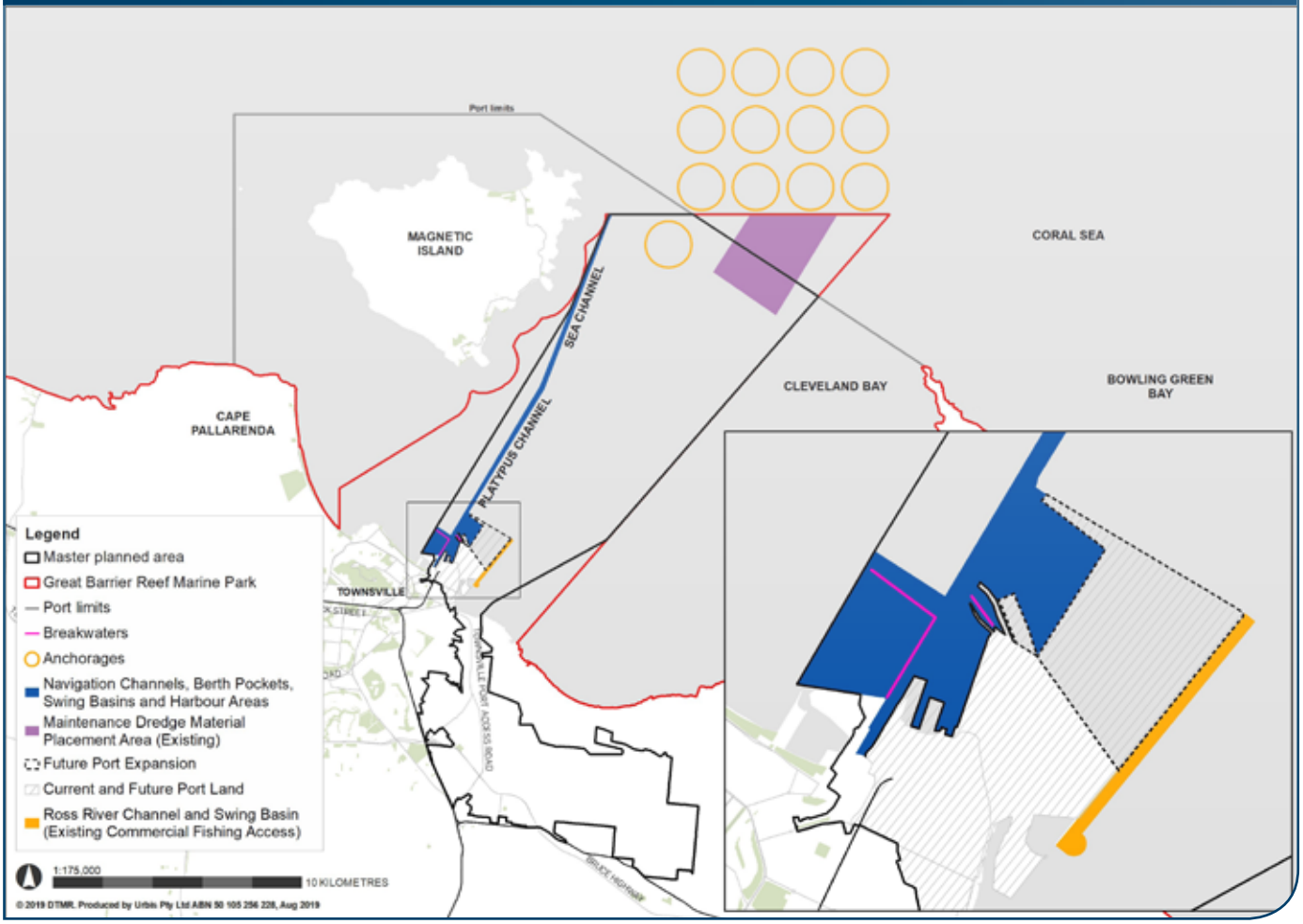
Capital and maintenance dredging (and any associated works) for vessel navigation and berthing of vessels maintains and enhances the safe navigation and operation of waterways.

Development establishes a new outer harbour and additional berths in the expanded port area.

Development maintains and protects port infrastructure that provides for safe navigation, including the shipping channels, breakwaters, swing basins, and navigational works.

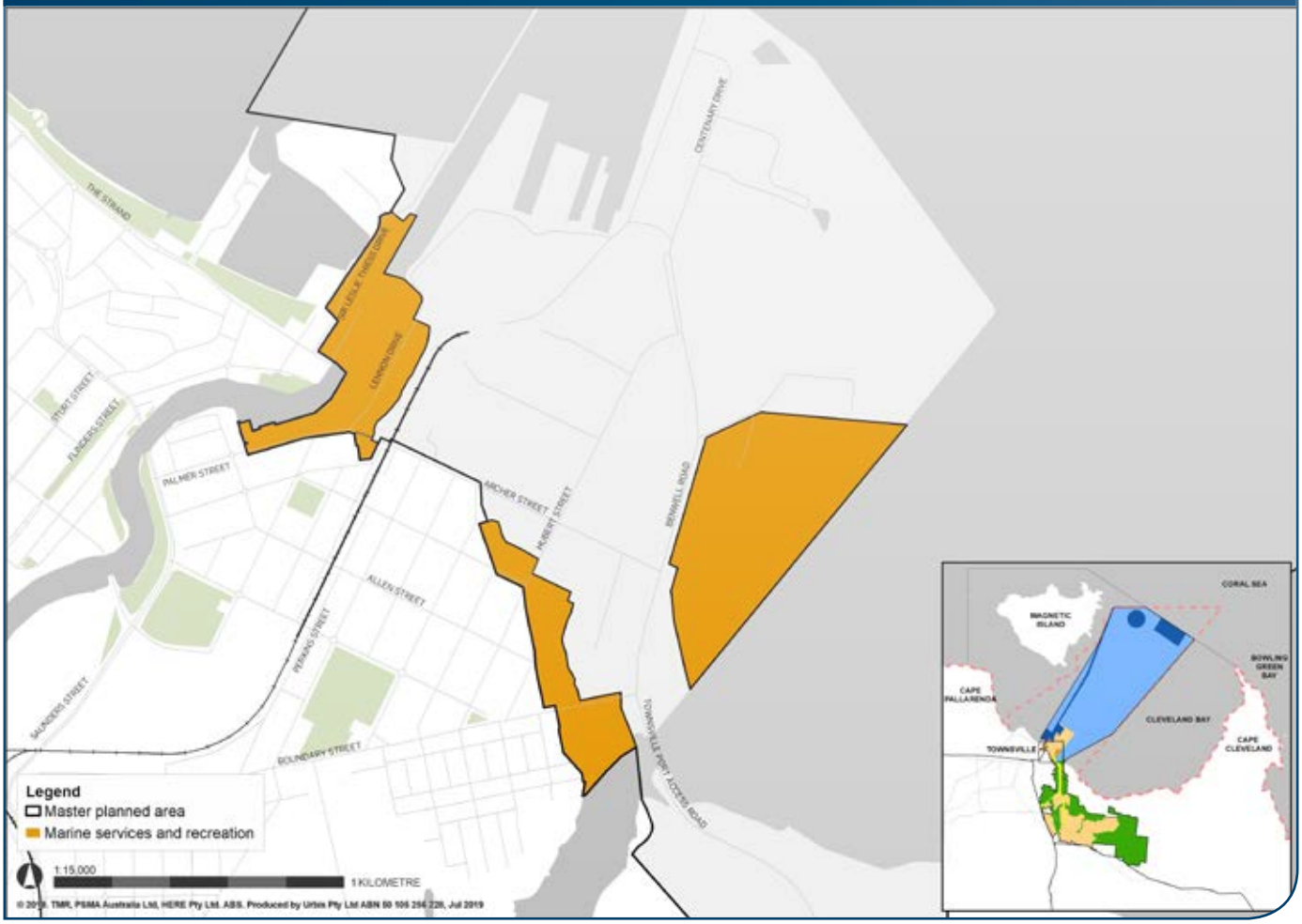
Development maximises the effective and efficient utilisation of infrastructure and port facilities, including the establishment of common user arrangements where practicable.

### Figure 20 — Marine infrastructure within and surrounding the master planned area



# Marine services and recreation precinct

**Figure 21 — Marine services and recreation precinct**




## Purpose

The purpose of the **Marine services and recreation precinct** is to provide for a range of maritime activities, associated marine industries, access to the waterfront and facilities to support tourism, recreational activities, public open space, and commercial fishing in a manner that maintains maritime safety. The precinct is also to provide for urban development where appropriately designed and located to mitigate potential impacts on or from port operations.

## Description

This precinct comprises the following areas:

- parts of SPL, where within the TCWPDA
- SPL located on the southern side of port operations
- Ross Creek public boat ramp and associated infrastructure
- part of the Townsville City Plan area.

## Outcomes

Development for marine-related and compatible uses occurs including commercial and marina activities and associated marine industries, small boat harbour, coastal rescue services, commercial, light industry, educational facilities, and public open space.

Development provides public access to the waterfront and the harbour (including boat ramps, marina, open space, and community facilities) where it does not compromise public safety or the security of port operations.

Permanent residential accommodation (i.e. multiple dwellings and retirement facilities) is only located in areas that do not have a direct interface with port operational areas.

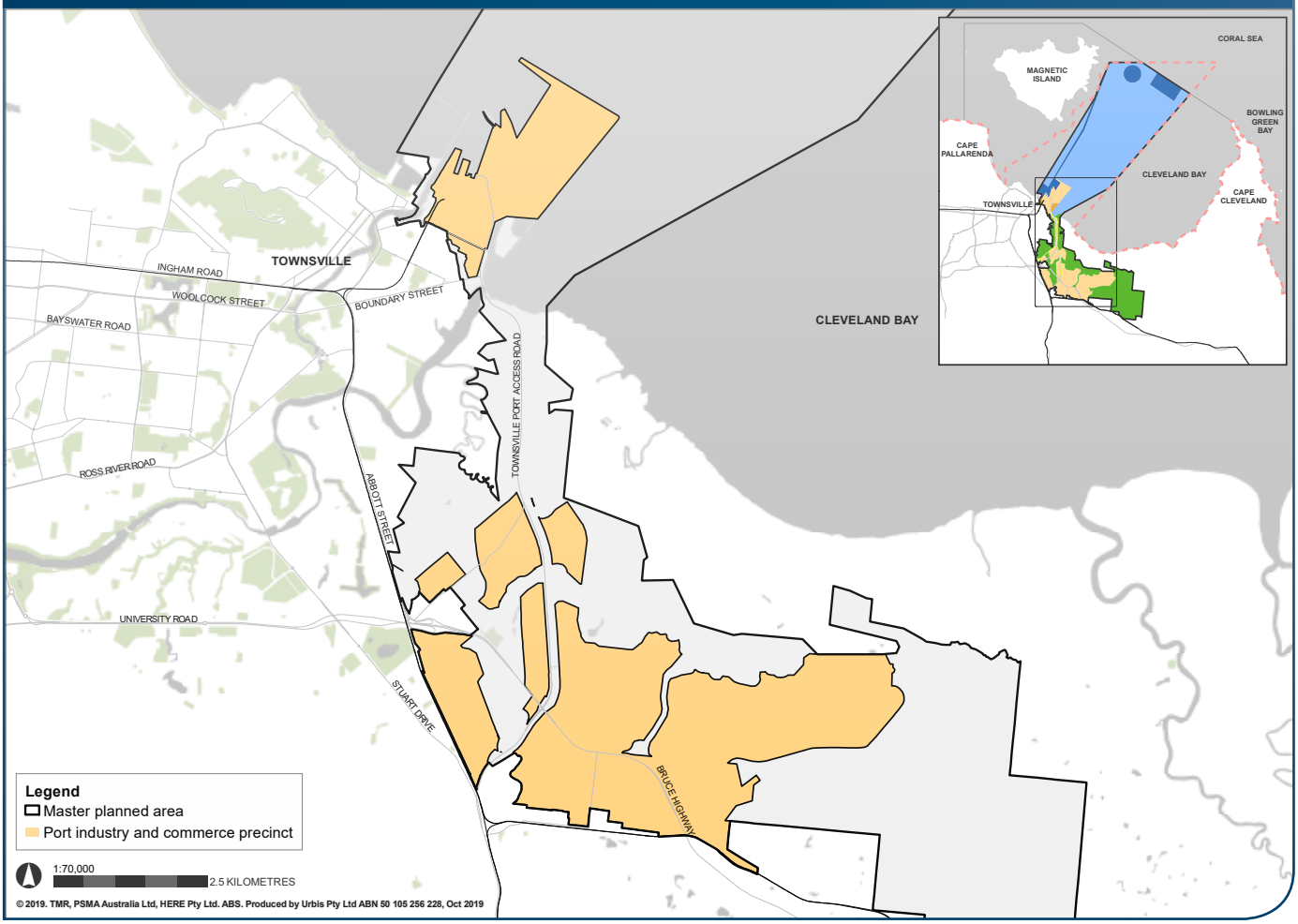
Sensitive uses, including permanent residential accommodation and short-term accommodation, may otherwise be provided along Ross Creek, Archer Street and Perkins Street where the development can be appropriately designed to minimise potential impact from light, noise, odour, dust, and visual impact on, or from, the port operations or port infrastructure.

Development is located and designed to ensure that reverse amenity impacts on port operations are effectively mitigated.

Development supports ease of movement and connectivity between the Townsville CBD and the waterfront including measures like wayfinding and pedestrian integration.

# Port industry and commerce precinct

**Figure 22 — Port industry and commerce precinct**




## Purpose

The purpose of the **Port industry and commerce precinct** is to provide for port operations, industry, port-related commercial activities, and other supporting or related development.

## Description

The Port industry and commerce precinct is the primary industrial precinct within the master planned area and includes existing port activities and operations, and the future port expansion area, including land and infrastructure connecting to the proposed TEARC.

The precinct comprises:

- SPL owned and administered by POTL
- areas within the TSDA, identified for industrial development of regional, state, and national significance, including areas for potential future port-related development
- marine areas (land reclamation) approved for future port expansion.

## Outcomes

**Port land (including the port expansion project area)**

Development delivers an evolution of the layout and function of port land uses and supply chain infrastructure generally in accordance with **Figure 23**, to maximise the efficiency of operations and productivity, and to accommodate improved supply chain connections and functionality.

Development provides a wide range of uses that directly support the import and export of cargo and allied non-industrial uses, such as cargo storage, handling and transportation, and defence activities which contribute to the effective, efficient, and sustainable growth of the port.

Development maximises the effective and efficient utilisation of existing (where retained) and future port infrastructure and facilities. In particular, development must protect and integrate with the proposed TEARC and associated future rail loops in the port.

Development encourages the co-location of related industries and facilities to provide enhanced port utilisation, cargo handling, and transfer efficiencies.

Development maintains ongoing accessibility by land or water to, and from cargo, and commodity handling areas.

Development provides for the manoeuvrability of heavy vehicles utilising the internal port road network.

Development that is heavily reliant on wharf or rail dispatch facilities is located adjacent to those facilities or otherwise connected by necessary infrastructure.

Development of essential infrastructure required for daily operations of the port such as security, customs and quarantine requirements, parking facilities, utility installations, staging areas for heavy vehicle movements, and materials transportation infrastructure to support industry, is provided.

Interim or temporary development does not compromise the long-term efficient utilisation of the port.

Port operational areas are only located in areas that do not have a direct interface with permanent residential accommodation.

Development encourages the location of higher impact intensive port operations (such as movement of dry bulk and livestock) to be located as far away from existing and future sensitive land uses as practical.

Development involving a hazardous chemical facility is managed to protect human health and safety.

Development that has an interface with sensitive land uses is designed to maintain a high standard of amenity for existing and future sensitive land uses.

Development is appropriately located, designed, and managed to avoid environmental impacts.

**Townsville State Development Area**

Development will provide industries which are of regional, state, and national economic significance, and supply chain infrastructure in appropriate locations that supports the operation of the port and industry. Uses may include port-related industry, logistics and freight terminals, and linear infrastructure.

Road, rail and conveyor infrastructure within the precinct will maximise transport, infrastructure, and land use efficiencies, including the establishment of common user arrangements where practicable.

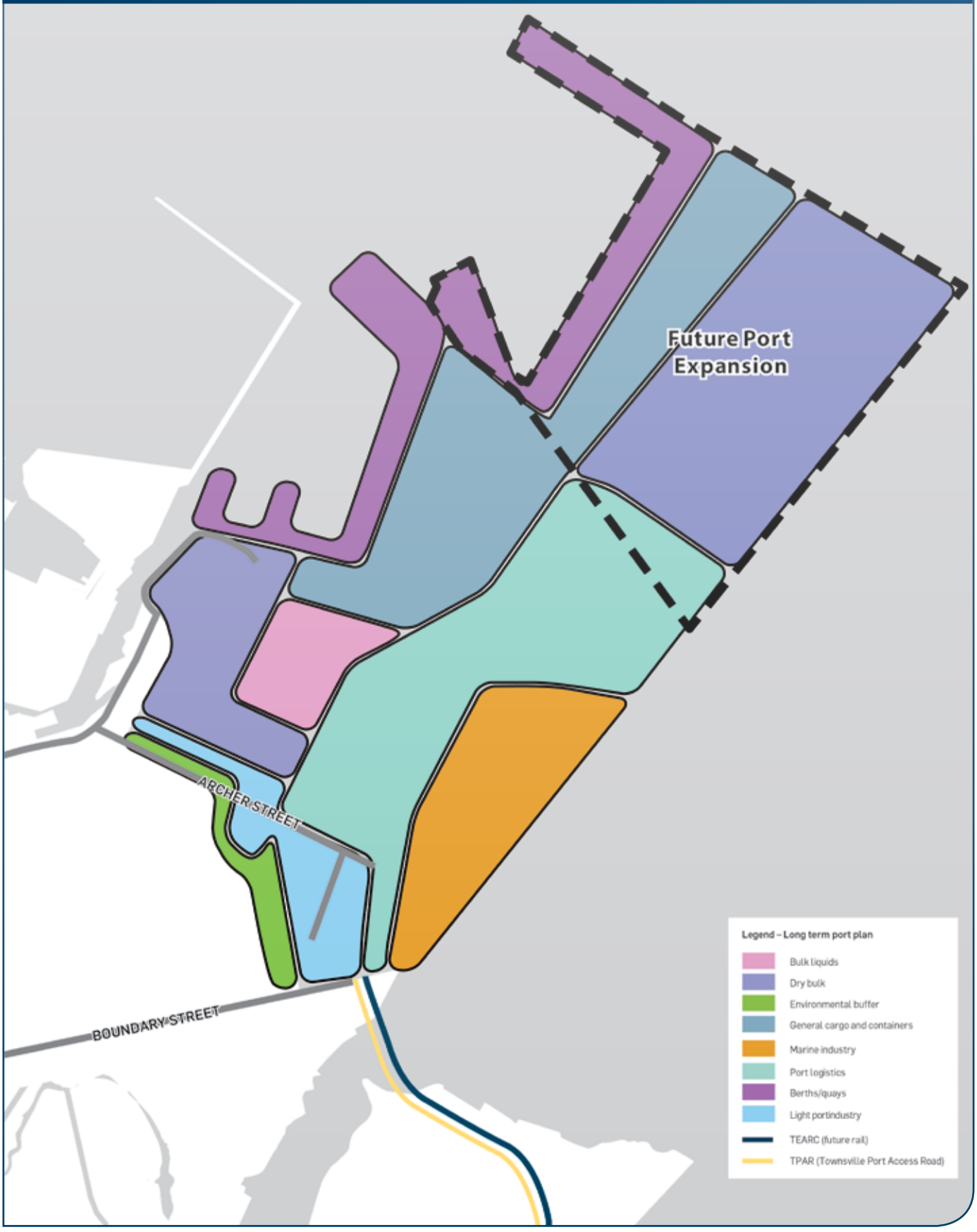
Development must protect the safe and efficient function of the Bruce Highway, the NCL, the proposed TEARC, and the existing TPAR, and the future duplication of the TPAR.

Development that is adjacent to the Infrastructure and supply chain corridors precinct does not compromise the establishment and operation of existing and/or potential future infrastructure.

Interim or temporary development does not compromise the long-term efficient utilisation of supply chain infrastructure associated with the operation of the port and industry.

Development is appropriately located, designed, and managed to avoid environmental impacts where possible or otherwise minimise impacts.

## Figure 23 — Long-term port plan



# Part D: Environmental management framework

## Overview

The Ports Act establishes the legislative requirement for a master plan to include an EMF. The EMF describes the interaction of port related-development with environmental values.

The master plan identifies environmental values that relate to the natural, cultural, and social environments with a focus on MNES, MSES and the environmental values that contribute to the local expression of the OUV of the GBRWHA.

The role of the EMF in the master plan includes:

- **identifying environmental values:** identifying and mapping environmental values within and surrounding the master planned area, including those that contribute to the OUV of the GBRWHA
- **identifying potential impacts:** identifying any potential impacts that development in the master planned area may have on environmental values
- **managing impacts:** stating the EMF objectives and measures (priority management measures) for managing impacts that have been identified.

The master plan adopts an approach for managing potential impacts from development within the master planned area which will be achieved by implementing the environmental management hierarchy of avoid, mitigate and/or offset through existing legislation.

The master plan adopts an approach for managing potential impacts from development within the master planned area which will be achieved by implementing the environmental management hierarchy of avoid, mitigate and/or offset through existing legislation.

Where development occurs, and avoidance is not practicable (within the context of the principles of ESD), mitigation measures are implemented to reduce the extent, severity and/or duration of potential impacts on environmental values as a result of the development. If a development, after applying all practicable avoidance and mitigation measures, results in a significant residual impact on an environmental value, an offset may be required, if appropriate in accordance with state and Commonwealth legislation and policies, in order for the development to proceed.

An environmental risk assessment of potential development activities was undertaken to identify potential impacts on the environmental values within and surrounding, the master planned area. This process considered the existing state and Commonwealth legislation, state and local planning instruments, operational environmental management measures, and approvals, in managing potential impacts from development on environmental values.

Environmental values within and surrounding the master planned area were identified through a review of relevant documents, publicly available databases, statutory mapping and EIS technical reports prepared in accordance with state and Commonwealth legislation. Information from new validated data sources (such as recent seagrass surveys and historical shorebird roost monitoring) was added as part of the process. At the time of preparation, consultation with stakeholders and data custodians occurred to confirm the accuracy of information.

The environmental, social, and cultural values providing a local contribution to the OUV of the GBRWHA were identified to inform the master planning process. This included a local statement of integrity for the master planned area and surrounding areas. For further information, please refer to the evidence base materials on the TMR website.

# Environmental values within and surrounding the master planned area

Land and marine areas within and surrounding the master planned area contain sensitive terrestrial and marine environments of national and international significance. These are recognised and protected through state and Commonwealth legislation.

Cleveland Bay and Bowling Green Bay support rich coastal ecosystems including fish nurseries and dugong protection areas, and important seabed, fringing coral reef, intertidal sand and mud flats, as well as seagrass and mangrove habitats. Bowling Green Bay is also a Ramsar wetland of international significance comprising a diverse complex of coastal wetland systems that provides habitat for waterbirds and migratory species.

A diverse range of terrestrial and other habitats are also present within and surrounding the master planned area. These include remnant vegetation communities, coastal lowlands featuring estuaries, rivers, creeks and wetlands, and mountainous landforms such as Mount Louisa, Castle Hill, Mount Stuart and Magnetic Island which support a diverse range of flora and fauna species.

### Magnetic Island

Magnetic Island has a diverse array of terrestrial and marine ecological communities. Marine environments include mangrove forests, salt marshes, fringing coral reefs and seagrass communities which provide important refugial habitat for marine flora and fauna.

Magnetic Island hosts a range of cultural landscapes that contain a wealth of material evidence of past and present use of terrestrial and coastal habitats and resources by the Wulgurukaba People. A number of locations on the island contain material evidence of shell middens, pigment art, stone artefact scatters and quarries, fish traps, rock-shelters and campsites known to, and actively maintained, by the Wulgurukaba People today.[11]

The environmental values of Magnetic Island are highly valued by residents and tourists and provide commercial benefits to the local community. Maintaining the health of the environment is essential to support both social and recreational economic opportunities.

Mapping of identified environmental values within and surrounding the master planned area, including those that contribute to the OUV of the GBRWHA is included at **Appendix B**.

## Environmental values that contribute to the local expression of Outstanding Universal Value

Cleveland Bay comprises a large portion of the master planned area and is located within the GBRWHA. Cleveland Bay is a sheltered, north facing bay which provides habitat for flora and fauna including stands of coral reefs, many types of fish, whales, dolphins, dugongs, turtles, migratory shorebirds, macro algal communities, and Magnetic Island. It is recognised that all environmental values provide a vital contribution to the diversity and structure of local and regional ecosystems of the GBR.

To ensure that OUV is an intrinsic consideration in priority port planning, management and governance, an evidence-based assessment was undertaken to identify the local expression of OUV relative to the whole GBRWHA. This assessment builds on the OUV attributes identified in the environmental impact assessment processes for the PEP.

All attributes contribute to the structure and diversity of the local ecosystem.

**Table 4** summarises the local attributes and associated environmental values within and surrounding the master planned area.

Contribution classifications in **Table 4** vary for each world heritage criterion and specific environmental values. The classifications relate to the attributes' significance relative to the whole GBRWHA, and do not contradict any conservation listings under legislation or conventions, condition/trends in outlook reports, status in the retrospective statement of OUV or otherwise.

The classifications used in **Table 4** are generally defined as:

- **Significant contribution**: The attribute represents locally important examples of the attribute relative to the nature of the attribute across the GBRWHA. Such an attribute may be specifically referred to within the retrospective statement of OUV for the GBRWHA or defined by other legislation, planning instrument or values assessment (for example in the Great Barrier Reef Outlook Report). The occurrence of the attribute locally is a prime example of the features mentioned in the retrospective statement of OUV.
- **Moderate contribution**: The attribute occurs in moderate abundance or across a moderately large area but is not the prime occurrence or representation of the attribute within the GBRWHA. The attribute does, however, represent a feature for which the Great Barrier Reef was listed as World Heritage.
- **Minor contribution**: The attribute is present however it occurs in low abundance or singularly and is:
  - not essential to the sustainability of the attribute (for example substantial breeding population)
  - not recognised as a key feature of the GBRWHA
  - not included in the retrospective statement of OUV
  - not iconic, unique or a high-quality example of the attribute.

Further information about how the contribution of these attributes align with specific OUV criterion is at **Appendix E**

## Table 4 — Local attributes and environmental values that contribute to the OUV of the GBRWHA

| Local attribute | Environmental values[12] |
|---|---|
| Coral reefs | **Moderate contribution to the OUV of the GBRWHA**<br><br>Coral reefs and shallow water coral reefs are present fringing Magnetic Island and between Magnetic Island and Townsville.<br><br>Reef communities comprised of hard and soft corals exist around Magnetic Island, at Middle Reef and at Virago Shoal (located between Magnetic Island and Cape Pallarenda). The Cockle Bay reefs, located on the south-western side of Magnetic Island, are characterised by species adapted to the high siltation and turbidity associated with the coastal processes of Cleveland Bay.<br><br>Cleveland Bay also supports a network of nearshore reefs and shallow water coral reefs, which have different levels of inter-connectivity and habitat structure. Based on mapping from the Great Barrier Reef Marine Park Authority (GBRMPA), the total area of reef habitat in Cleveland Bay is approximately 987 hectares.<br><br>Annual coral spawning occurs at these sites, generally in October. The size and density of inshore reefs does not result in the mass spawning events more commonly associated with mid shelf and outer reefs. |
| Fish species | **Minor contribution to the OUV of the GBRWHA**<br><br>Cleveland Bay provides habitat for a variety of fish species. Protected Fish Habitat Areas have been established in Cleveland Bay and in nearby Bohle River and Bowling Green Bay. |
| Marine megafauna (dugong, whales, dolphins) | **Significant to minor contribution to the OUV of the GBRWHA**<br><br>Cleveland Bay is recognised as dugong habitat and is a declared Dugong Protection Area. Cleveland Bay is thought to be an important dugong habitat at a regional scale as it contains some of the most extensive and diverse seagrass meadows in North Queensland.<br><br>Humpback whale adults and calves have occasionally been recorded within the coastal waters of Cleveland Bay, usually during August-September.<br><br>Dolphin species are known or likely to occur in Cleveland Bay, including endangered Australian snubfin dolphin and Indo-Pacific humpback dolphin and also Common dolphin and the Bottlenose dolphin. |
| Marine turtles | **Minor contribution to the OUV of the GBRWHA**<br><br>Species of sea turtles, including the endangered loggerhead, hawksbill, and possibly leatherback and olive ridley species, frequent Cleveland Bay and surrounding beaches. Townsville and Magnetic Island beaches are known to be regular nesting sites for green and flatback turtles, however, the density is low in comparison to other sites within the GBR. Other species of turtles forage in Cleveland Bay but are not known to nest in the area. |
| Seagrass and macroalgae | **Significant to minor contribution to the OUV of the GBRWHA**<br><br>Cleveland Bay contains some of the most extensive and diverse seagrass meadows in North Queensland. Eight species of seagrass have been recorded in Cleveland Bay with the most extensive beds located in the eastern portion of Cleveland Bay. Smaller beds occur off the Strand, Kissing Point, Pallarenda Beach and some bays fringing Magnetic Island.<br><br>*Halimeda algae* beds occur around Cockle Bay (southern Magnetic island), but at the time of the 2012 reef surveys, were not found to be significant. |
| Shorebirds and migratory seabirds | **Significant to minor contribution to the OUV of the GBRWHA**<br><br>A variety of seabirds are present in the marine and wetland areas and small to moderate colonies of nesting seabirds occur within or surrounding the master planned area.<br><br>Shorebirds frequently occur within and surrounding the master planned area, while feeding, resting or migrating from one area to another.<br><br>Intertidal and wetland areas, particularly the east bank of Ross River and at Cape Cleveland, provide foraging habitat for many species of wading birds and migratory bird species. |

## Table 4 — Local attributes and environmental values that contribute to the OUV of the GBRWHA

| Local attribute | Environmental values |
|---|---|
| Flora, fauna and ecological communities | **Significant to minor contribution to the OUV of the GBRWHA**<br><br>There is only a very minor representation of plant species of conservation significance present within the master planned area, including several threatened mangrove species and *Croton magneticus*, which is recorded on Magnetic Island.<br><br>One threatened ecological community has the potential to be present within the master plan boundary area – Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions – which is listed as endangered under the EPBC Act. Mapping suggests it is present on Magnetic Island and in parts of the TSDA.<br><br>Rugged mountains rise abruptly from the coastal plain and include Mount Stuart, as well as the landforms of Castle Hill and Magnetic Island.<br><br>Substantial mangrove stands occur in Cleveland Bay and around Magnetic Island.<br><br>The Bowling Green Bay Ramsar wetland is located to the south of Townsville. The site is significant for its extensive and diverse complex of coastal wetlands which are mostly coastal plain covered in tidal mudflats, mangrove forest and salt marshes. |
| Continental islands | **Moderate to minor contribution to the OUV of the GBRWHA**<br><br>Magnetic Island is a continental island with rocky granite headlands, sandy bays, covered with open eucalypt woodlands and surrounded by coral reefs. |
| Geomorphology | **Minor contribution to the OUV of the GBRWHA**<br><br>Cleveland Bay provides a variety of seascapes and landscapes including open water, continental islands, sand beaches, mudflats, mangroves and vegetated hills and headlands.<br><br>Townsville and Magnetic Island have a number of sandy beaches and bays.<br><br>Fringing coral reefs, Magnetic Island and coastal areas represent geomorphic processes, including ancient volcanic activity.<br><br>The offshore areas of Cleveland Bay form part of the larger longshore connections within the GBR lagoon.<br><br>Townsville is underlain by Quaternary-age alluvium and colluvium sediments, which, in turn, overlie basement geology comprising Late-Palaeozoic age Granite. The near surface lithology comprises Holocene sediments more than 12,000 years old, including silts, mud and sand described as coastal tidal flats, mangrove flats and saltpans. |
| Marine and terrestrial fauna | **Moderate contribution to the OUV of the GBRWHA**<br><br>Cleveland Bay, Magnetic Island and surrounding areas provide habitat for a large range of species and ecosystems, the most notable being the habitats of the Bowling Green Bay Ramsar wetland area and the migratory birds that use this area. |
| Total species diversity | **Moderate contribution to the OUV of the GBRWHA**<br><br>Common benthic flora and fauna are present in the marine areas. The intertidal and subtidal benthic areas are a key habitat for many species of invertebrates (e.g. crabs, shell fish, worms). |

## Other environmental and heritage values

Separate to the OUV of the GBRWHA, there are also important environmental values within and surrounding the master planned area that are significant, but not identified as directly contributing to the OUV of the GBRWHA. These were identified as part of the master planning environmental risk assessment and are summarised below.

- **Fish habitat areas:** breeding, feeding and nursery grounds for target species which are important for commercial and recreational fishing.
- **Freshwater, marine and estuarine water quality:** marine waters, fresh waters, and aquatic ecosystem values providing ecosystem services and protected under state legislation.
- **Habitat for threatened terrestrial flora and fauna:** flora and fauna species protected under Commonwealth and state legislation.
- **Heritage places:** state and local heritage places protected under state legislation.
- **Indigenous cultural heritage:** land and sea country are significant for social and cultural practices for the Bindal, Gurambilbarra Wulgurukaba and Wulgurukaba peoples.
- **Listed threatened and migratory species:** identified under international agreements and protected under Commonwealth legislation.
- **Saltmarsh communities and other marine plants:** provide habitat and food sources for a range of invertebrates, birds and fish and protected under state legislation.
- **Protected areas:** a range of protected areas providing environmental conservation and recreational opportunities, including National Parks and Conservation Parks, listed under the provisions of Commonwealth and state legislation.
- **Regional ecosystems:** remnant vegetation and ecological communities identified and protected under state and Commonwealth legislation.
- **Wetland areas and watercourses:** creeks, rivers and wetlands that support permanent and migratory bird populations, as well as fisheries and species which are important to local biodiversity values.

# Potential impacts from development on environmental values

The potential impacts from development within the master planned area on environmental values have been identified in **Appendix F** at a high level due to the large spatial extent of the master planned area, and the range of activities that could potentially occur within the precincts up to the year 2050.

As part of the master planning process, the potential impacts were considered against the existing statutory requirements and operational measures currently in place to minimise impacts on environmental values.

This process recognised that assessment processes currently provide for the detailed consideration of potential impacts on environmental values in accordance with existing legislation. The process also acknowledged where detailed assessment of potential impacts have been completed and approval conditions applied, to mitigate the impacts of the development in the future.

The following port-related development activities were identified as having the potential to result in impacts on environmental values within and surrounding the master planned area:

- capital dredging
- land reclamation for the purposes of beneficial reuse
- establishment of new port-related industries
- construction of supply chain infrastructure to support port-related development

The state and Commonwealth assessment processes for the PEP has allowed for the detailed identification of potential environmental impacts from the capital dredging, land reclamation and construction of infrastructure associated with that development.

**Appendix F** contains further information about activities, potential impacts, and values associated with future port-related development.

# Managing impacts

The Ports Act states that objectives and measures are required to manage impacts from development on environmental values within the master planned area.

The master plan adopts an approach for managing impacts which involves regulating development by exception only where requirements for development are necessary. This recognises that existing planning and regulatory frameworks across all levels of government provide a comprehensive system for the management of environmental impacts.

The master plan adopts an approach for managing impacts which involves regulating development by exception only where requirements for port-related development are necessary.

The framework for the management of potential impacts from development within the master planned area is provided by existing state and Commonwealth statutory requirements and operational environmental management measures. These statutory requirements and other operational environmental management measures will continue to manage environmental impacts within the master planned area.

The environmental risk assessment considered the existing Commonwealth and state legislation, state and local planning instruments, operational environmental management measures and approval processes, in managing potential impacts on environmental values from development. The outcomes of the environmental risk assessment identified that existing legislative processes are appropriate to avoid, minimise and offset impacts from development.

The master plan adopts an approach for managing potential impacts from development within the master planned area which will be achieved by implementing the environmental management hierarchy of avoid, mitigate and/or offset through existing legislation.

## Environmental management framework objectives

EMF objectives have been identified for each of the precincts to avoid, mitigate and/or offset potential impacts from development within the master planned area on environmental values, including the OUV of the GBRWHA, MNES and MSES. The EMF objectives for each of the master planned area precincts are identified at **Appendix G**.

The port overlay gives effect to the EMF objectives by identifying these as matters that must be considered when making and amending planning instruments, or when making development decisions, within the master planned area. This ensures that the EMF objectives can be addressed in future development assessment processes.

## Priority management measures

As described above, a comprehensive assessment of the existing statutory requirements and operational environmental management measures that apply to the master planned area was undertaken as part of master planning.

Due to the comprehensive nature of existing state and Commonwealth statutory requirements, approvals, and operational environmental management measures that apply to port-related development, a single priority management measure for the master planned area is identified in **Table 5** to manage potential light, noise, odour, dust and visual impacts from development in areas that interface with port operations.

**Table 5 — Priority management measures**

| Priority management measure | Master planned area precinct |
|---|---|
| **Port interface management**<br>Manage the interface between sensitive land uses and port operations to ensure that development minimises potential light, noise, odour, dust and visual impacts from port operations on sensitive uses. | **Interface**<br>**Marine infrastructure**<br>**Marine services and recreation**<br>**Port industry and commerce** |

# Part E: Master plan implementation

The master plan is a strategic document that will be implemented through the port overlay. The port overlay implements the master plan by providing requirements that are delivered through existing planning instruments that regulate development within the master planned area.

The following planning instruments regulate development within the master planned area:

- Townsville City Plan under the *Planning Act 2016*
- TCWPDA Development Scheme under the *Economic Development Act 2012*
- TSDA Development Scheme under the *State Development and Public Works Organisation Act 1971*
- Port of Townsville Land Use Plan under the *Transport Infrastructure Act 1994*.

It should be noted that the assessment triggers and benchmarks in the *Planning Regulation 2017* also apply within the master planned area.

The port overlay only regulates development in those parts of the master planned area where further requirements for development are necessary to implement the master plan in addition to existing planning instruments. This recognises that the outcomes sought by the master plan are, in many cases, already achieved through existing provisions, reduces duplication of provisions and minimises the potential for conflict between provisions that operate under different legislative heads of power.

Decision making by existing planning and other regulatory entities about relevant planning instruments and environmental legislation applying within the master planned area are not modified by the port overlay, and will continue to apply.

Under the Ports Act, the port overlay cannot regulate development under the TSDA Development Scheme or the TCWPDA Development Scheme.

Container vessel entering the harbour

# Appendix A

## Priority Port of Townsville master planned area regulation map

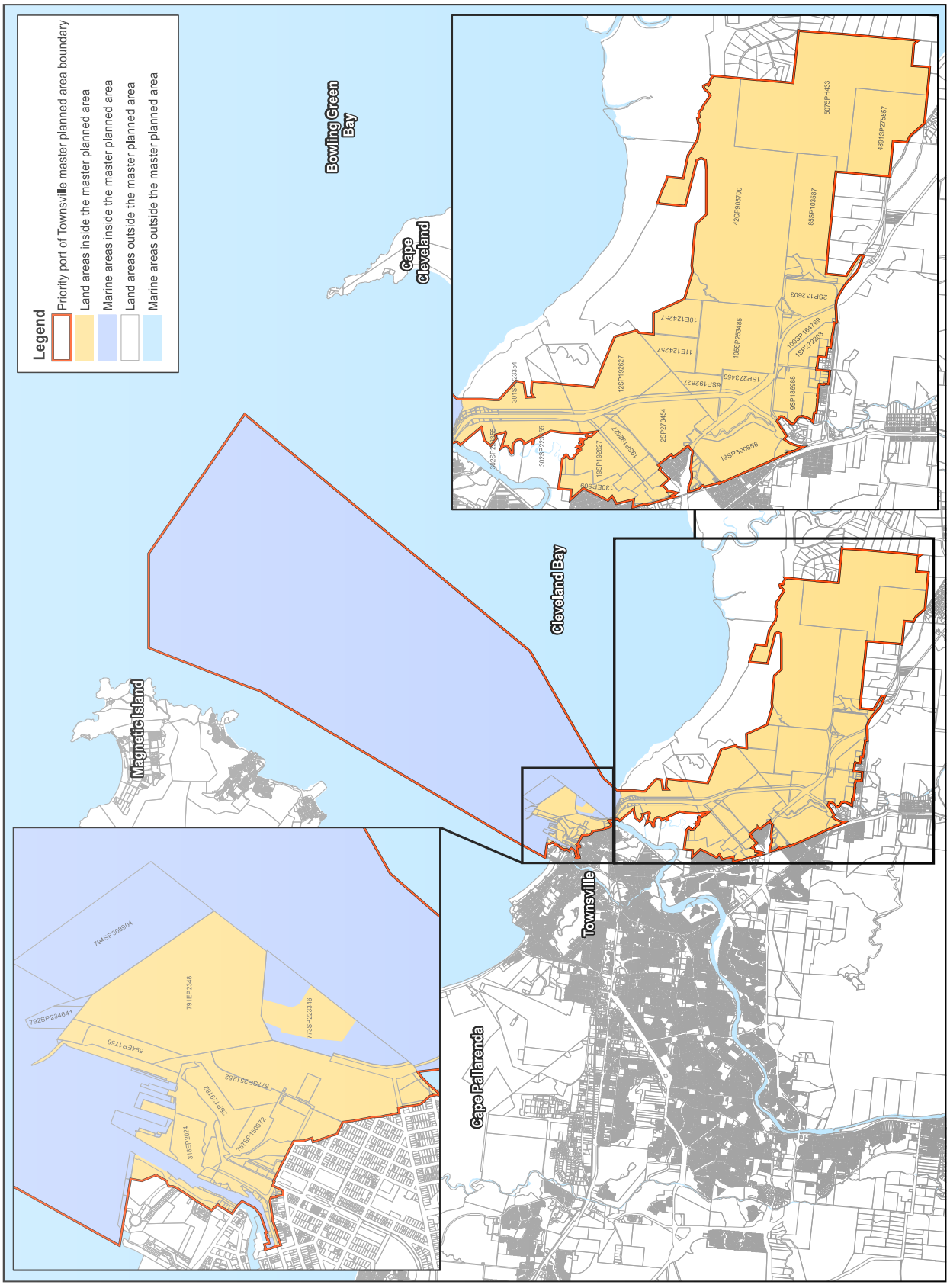



**Figure A1: Priority Port of Townsville master planned area – regulation map**

# Appendix B

## Mapping of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area and other environmental values

The mapping in this appendix has been prepared using existing datasets as current at the time of master plan publication. Some of these datasets have been synthesised using field collected data. Other datasets are the result of desktop studies. Not all mapping has been confirmed through field surveys. Data sources are referenced on each map.

It should also be noted that some mapping has been prepared over a period of time to account for seasonal variability of environmental values (for example, seagrass meadows) and should be considered as indicative only.

The mapping presented in this appendix is not exhaustive, and there may be other areas of environmental, social or cultural value that are not specifically identified.

The mapping identifies:

- Dugong Protection Areas
- Fish Habitat Areas
- Freshwater, marine and estuarine water types
- Great Barrier Reef Marine Park zoning
- Habitat for threatened terrestrial flora and fauna
- State and local heritage places
- Marine megafauna
- Migratory shorebirds
- Native title claims
- Protected areas
- Reefs and shoals
- Regional ecosystems
- Regional ecosystems containing mangroves and saltmarsh communities
- Seagrass meadows
- Wetland protection areas
- Wetlands and watercourses.

## Table B1 — Mapping datasets and sources

| Figure Title | Key dataset/s | Sources |
|---|---|---|
| Figure B1: Dugong Protection Areas | Cleveland Bay/Magnetic Island and Bowling Green Bay Dugong Protection Areas under the *Fisheries Act 1994* (Qld) | DAF (2017) |
| Figure B2: Fish Habitat Areas | Fish Habitat Areas regulated under the *Fisheries Act 1994* (Qld) | DES (2017) |
| Figure B3: Freshwater, marine and estuarine water types | Marine and estuarine waters from the *Environmental Protection (Water and Wetland Biodiversity) 2019* (Qld) | DES (2018) |
| Figure B4: Great Barrier Reef Marine Park Zoning | Great Barrier Reef Zones | GBRMPA (2014) |
| Figure B5: Habitat for threatened terrestrial flora and fauna species | Essential habitat regulated under the *Vegetation Management Act 1999* (Qld) (VM Act)<br>Threatened ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) | DNRME (2018) |
| Figure B6: State and local heritage places | State heritage places protected under the *Queensland Heritage Act 1992* (Qld)<br>Local heritage places under the Townsville City Plan | DES (2018); TCC (2018) |
| Figure B7: Marine megafauna | Recorded megafauna sightings within and surrounding Cleveland Bay from studies commissioned by the Port of Townsville Limited | GHD (2008); GHD (2012) |
| Figure B8: Migratory shorebirds | Migratory shorebird historical count data<br>Potential shorebird habitat | Queensland Wader Study Group (1983-2013); DNRME (2018) |
| Figure B9: Native title claims | Native determination applications registered with the National Native Title Tribunal (NNTT) under the *Native Title Act 1993* (Cwlth) | NNTT (2019) |
| Figure B10: Protected areas | Protected areas of Queensland under the *Nature Conservation Act 1992* (Qld) | DES (2018) |
| Figure B11: Reefs and Shoals | Reefs and shoals within and surrounding the master planned area | DNRME (2018) |
| Figure B12: Regional ecosystems | Regional ecosystem status under the *Vegetation Management Act 1999* (Qld) | DNRME (2018) |
| Figure B13: Regional ecosystems containing mangroves, saltmarsh communities and marine plants | Vegetation management regional ecosystem map under the *Vegetation Management Act 1999* (Qld) | DNRME (2018) |
| Figure B14: Seagrass meadows | Historical seagrass monitoring data based on monitoring conducted by James Cook University's Centre for Tropical Water and Aquatic Ecosystem Research (TropWATER) | TropWater (2016) |
| Figure B15: Wetland areas | Directory of important wetlands - Queensland<br>Ramsar (wetlands of international importance) | DEHP (2005); DES (2019) |
| Figure B16: Wetlands and watercourses | Vegetation management wetlands under the VM Act with vegetation management watercourse and drainage features based on GeoScience Australia dataset. | DNRME (2018), GeoScience Australia (2018) |

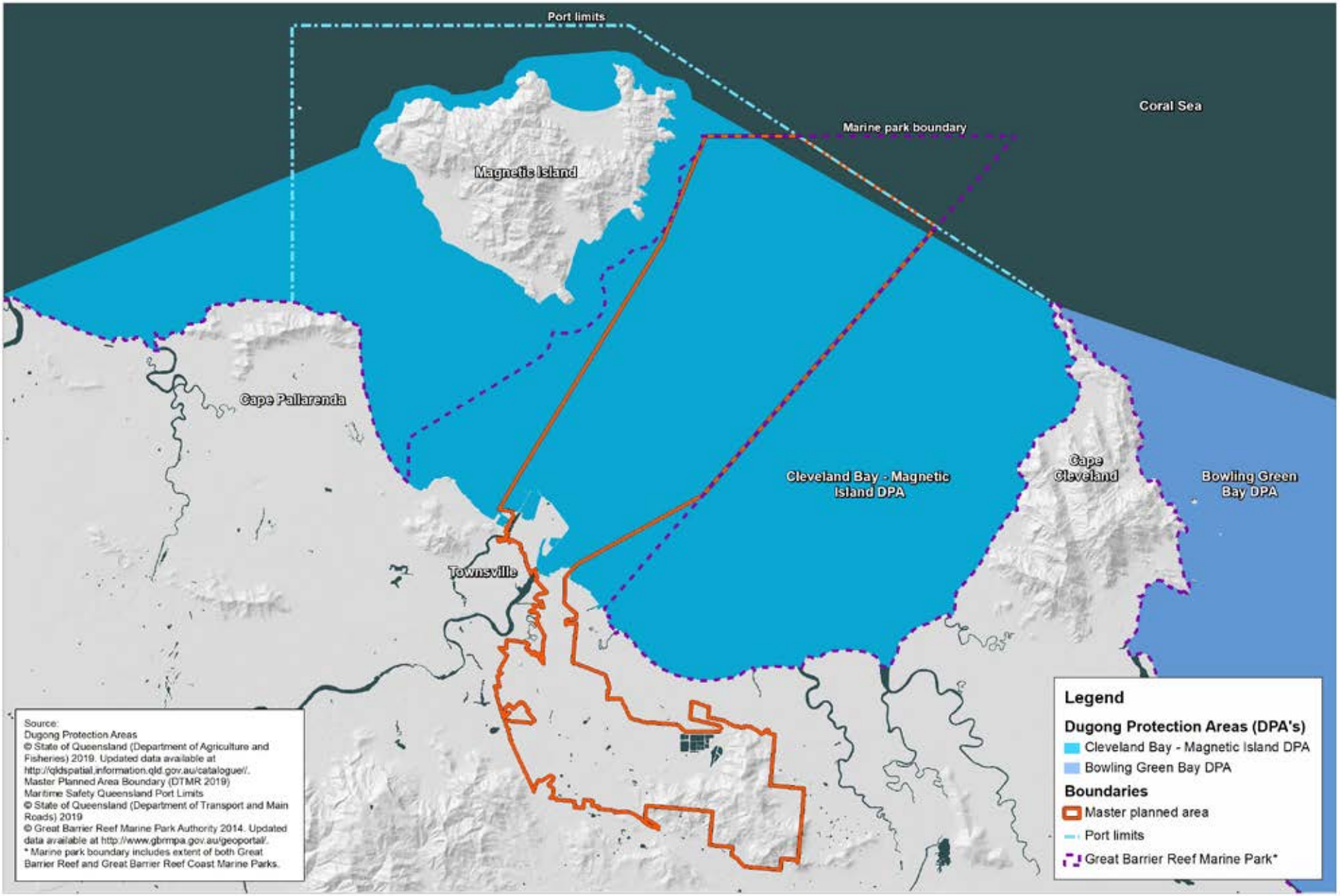



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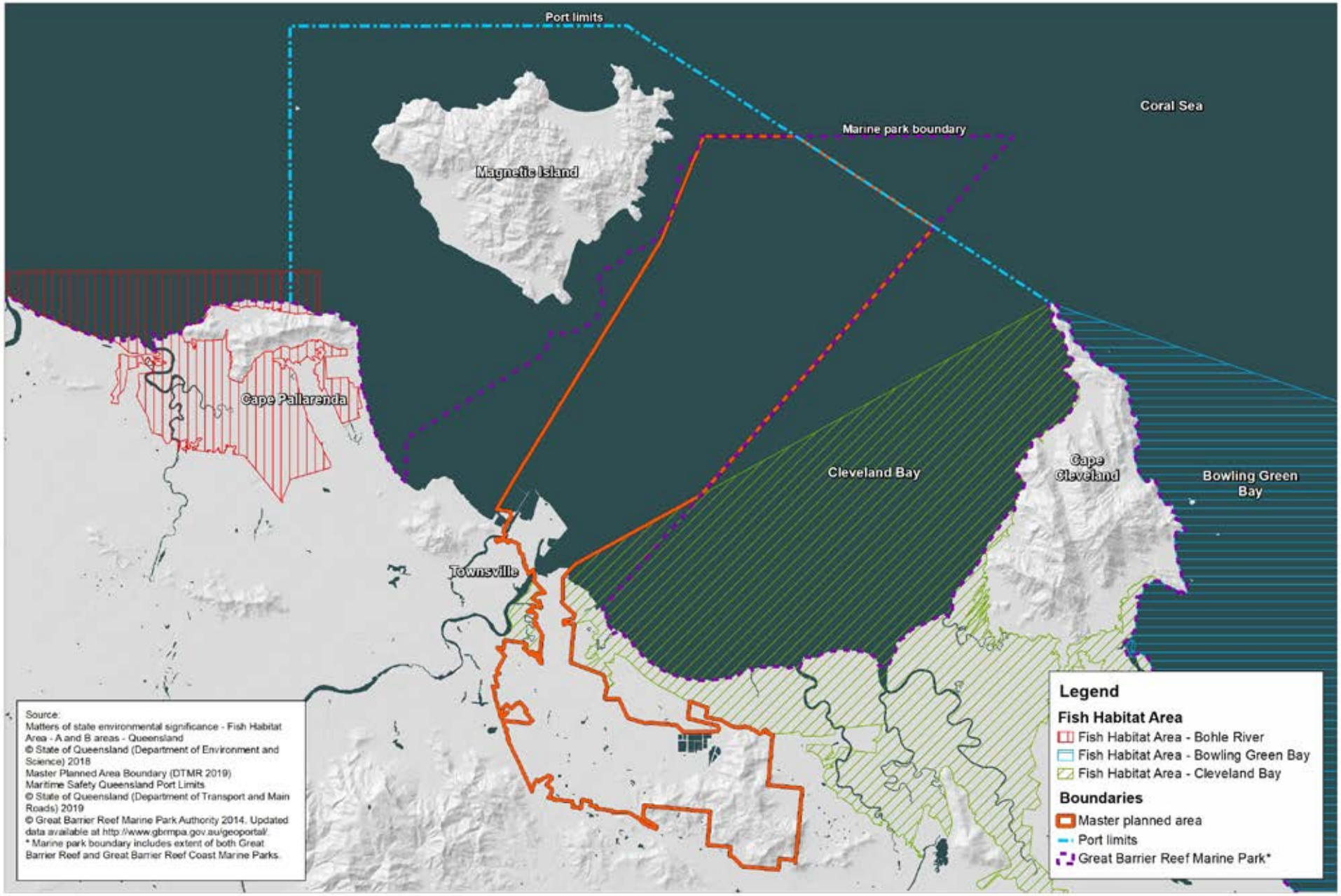
**Figure B1: Dugong Protection Areas**






Coordinate System: GDA 1994 MGA Zone 55

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**Figure B2: Fish Habitat Areas**

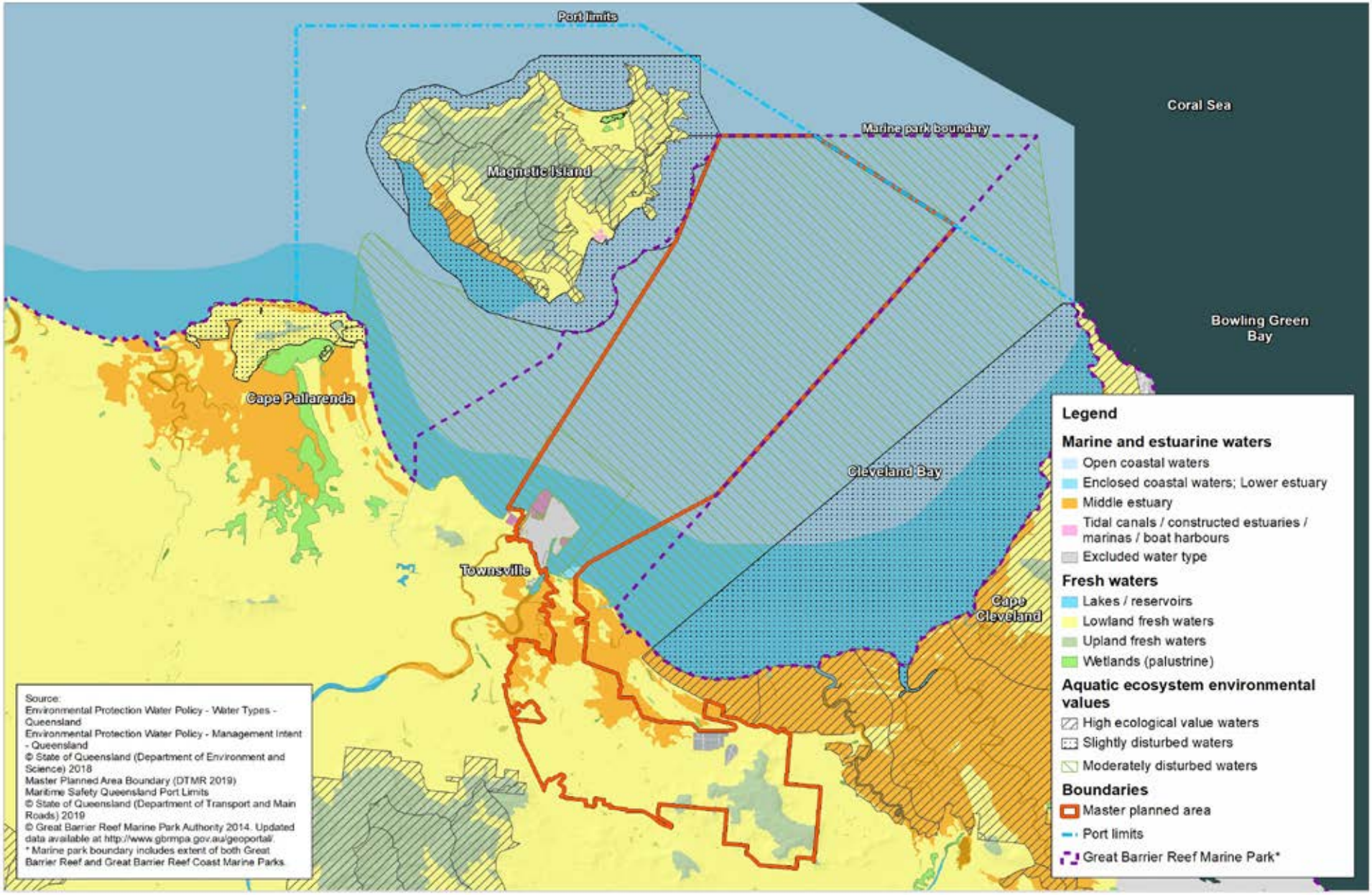


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**Figure B3: Freshwater, marine and estuarine water types**

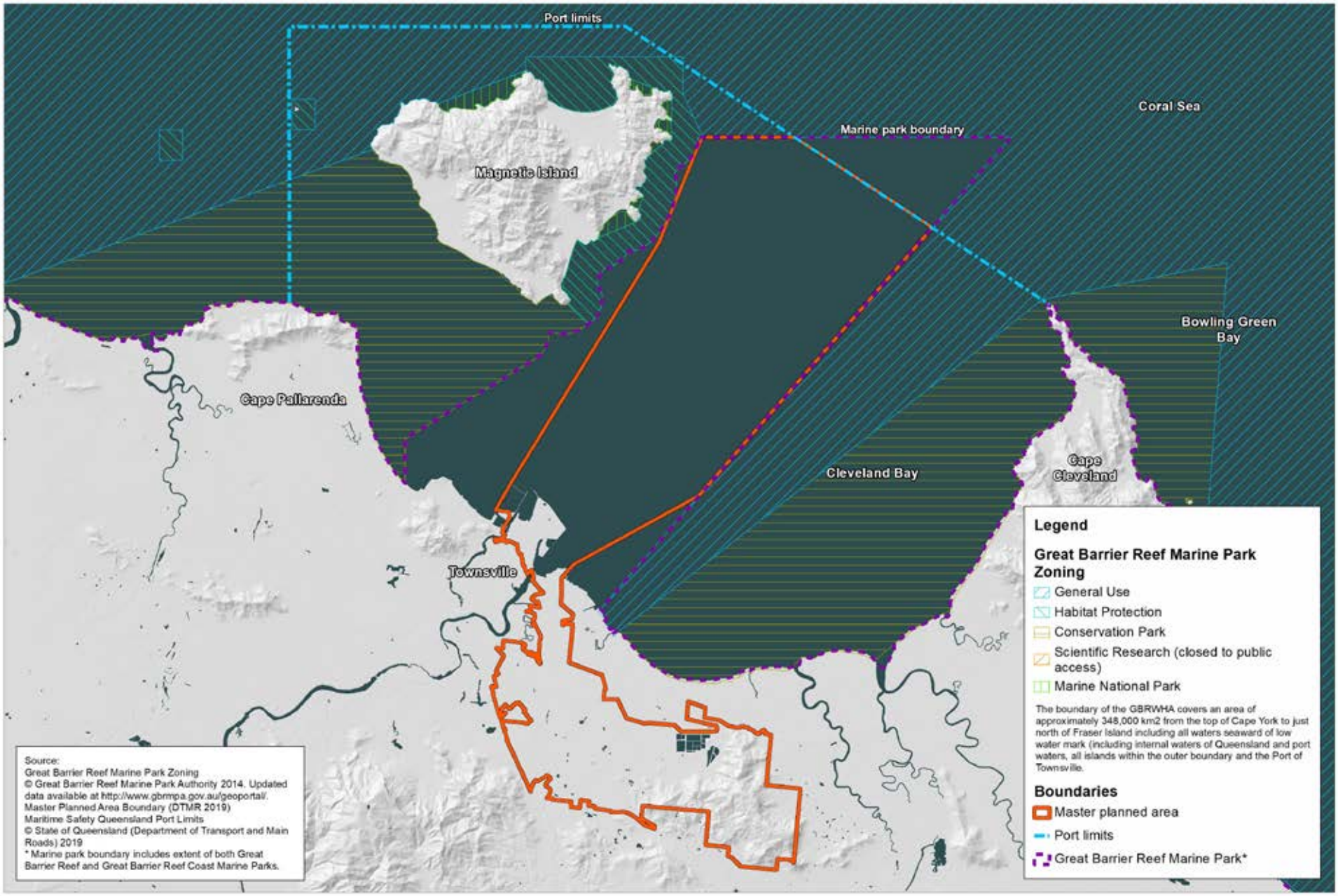


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**Figure B4: Great Barrier Reef Marine Park Zoning**

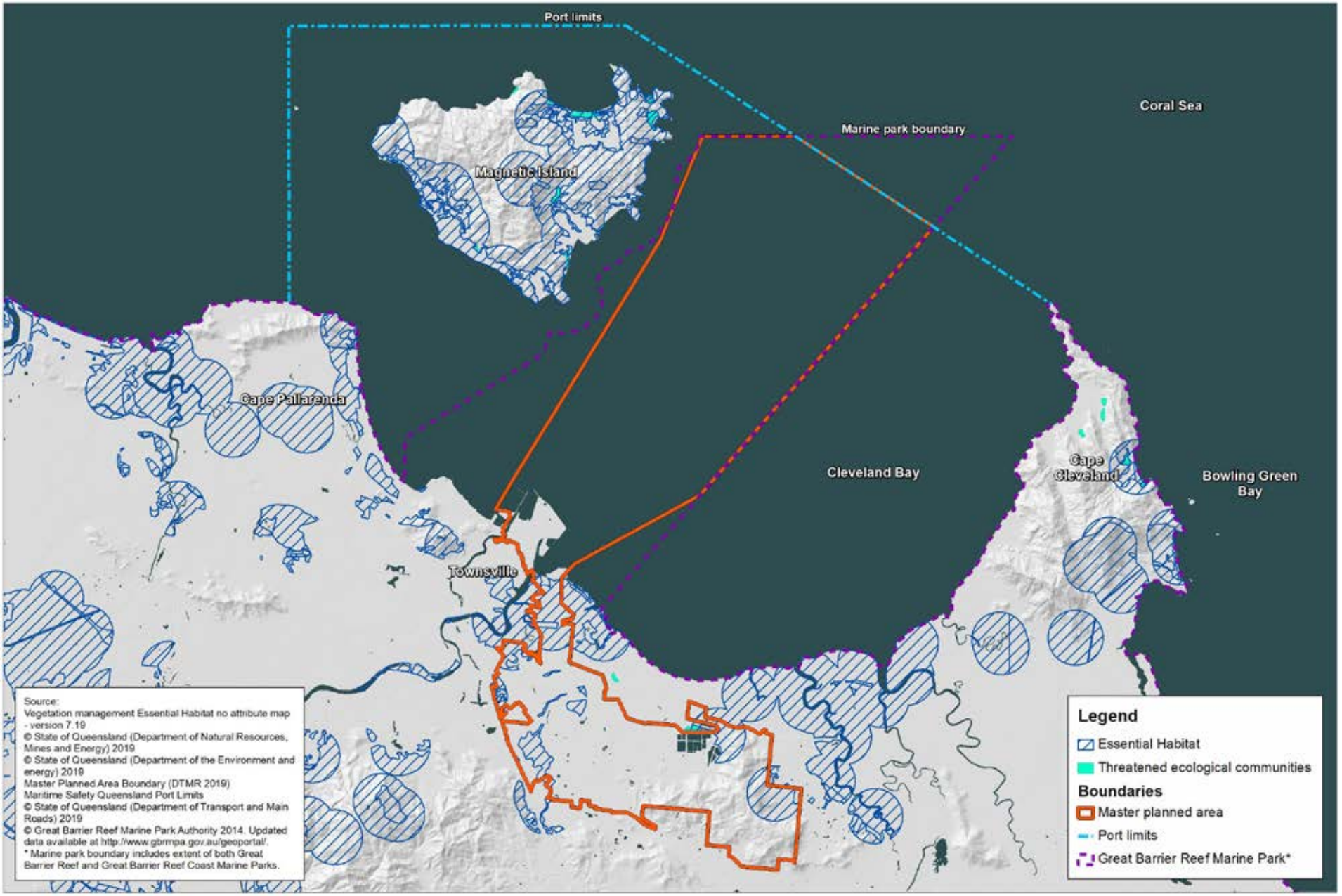


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**Figure B5: Habitat for threatened terrestrial flora and fauna species**

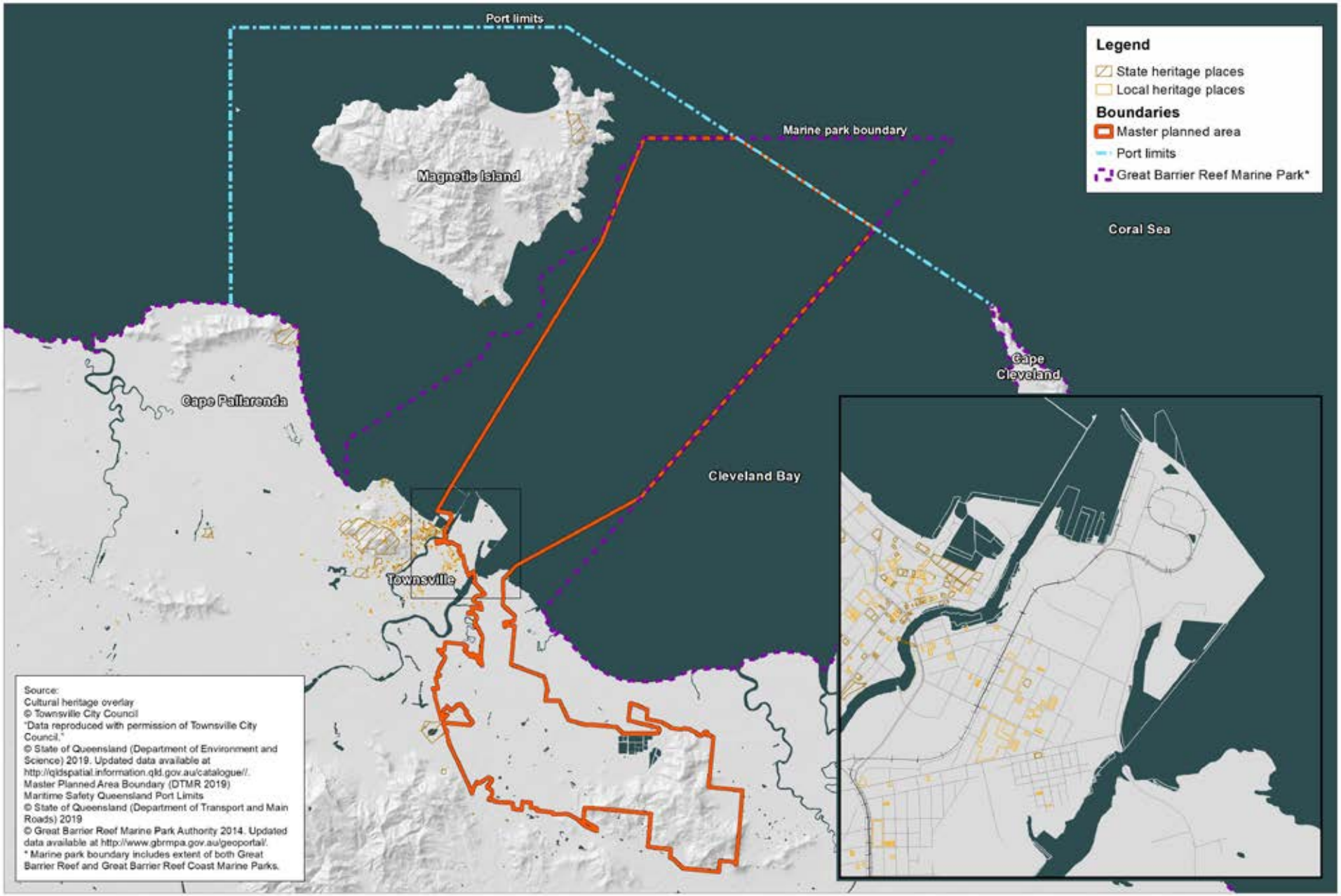


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**Figure B6: State and local heritage places**

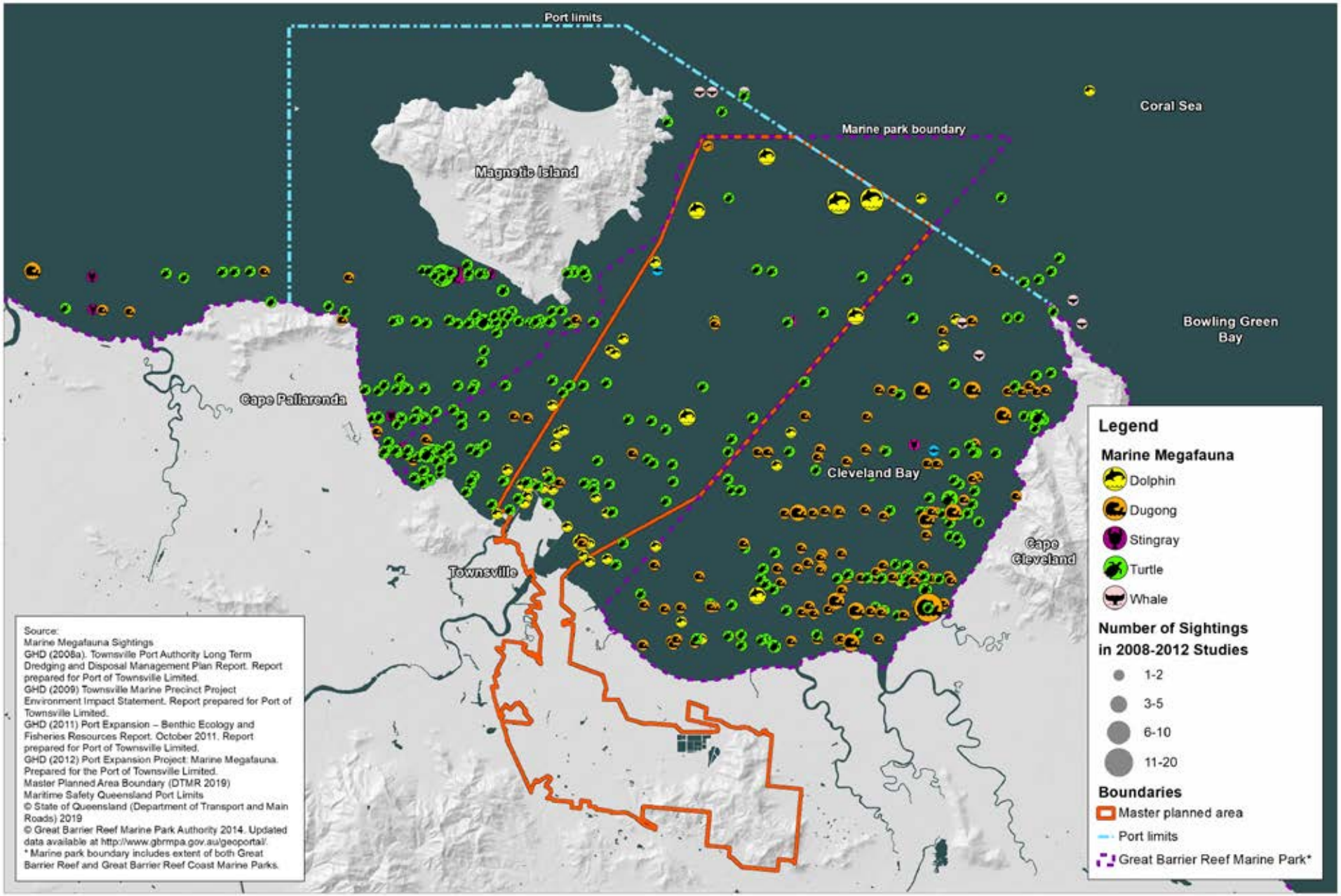


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**Figure B7: Marine megafauna**

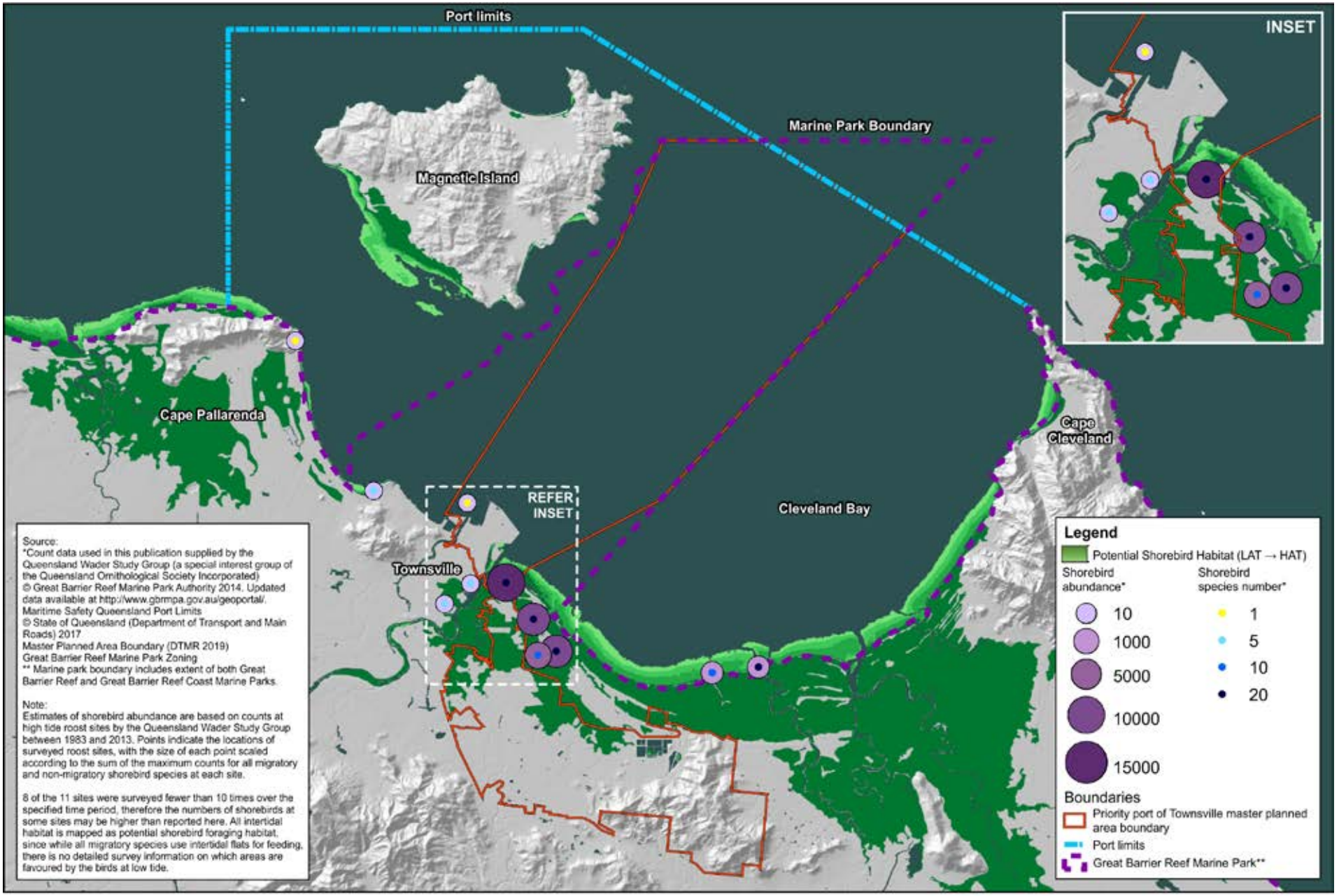


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**Figure B8: Migratory shorebirds**

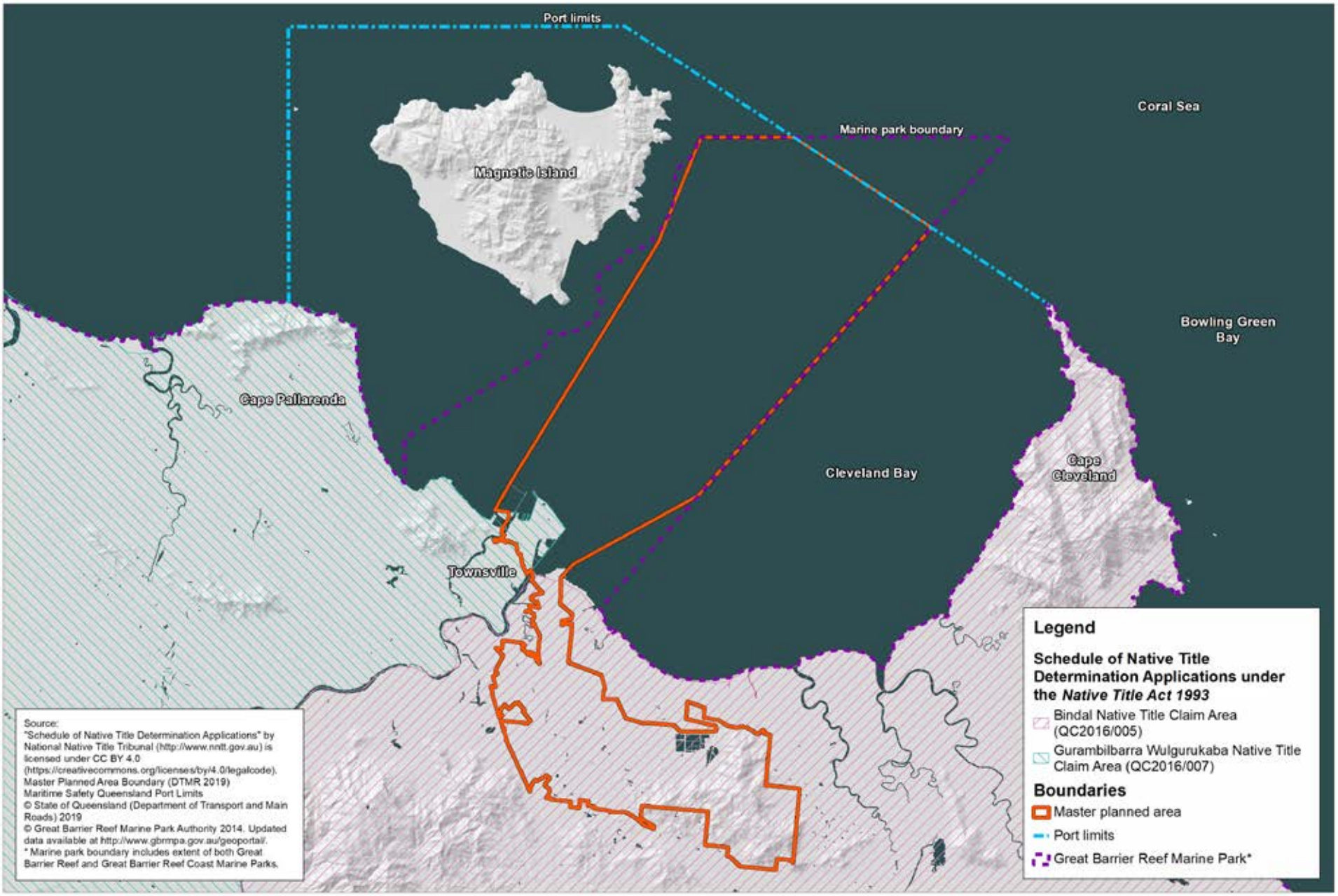


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**Figure B9: Native title claims**

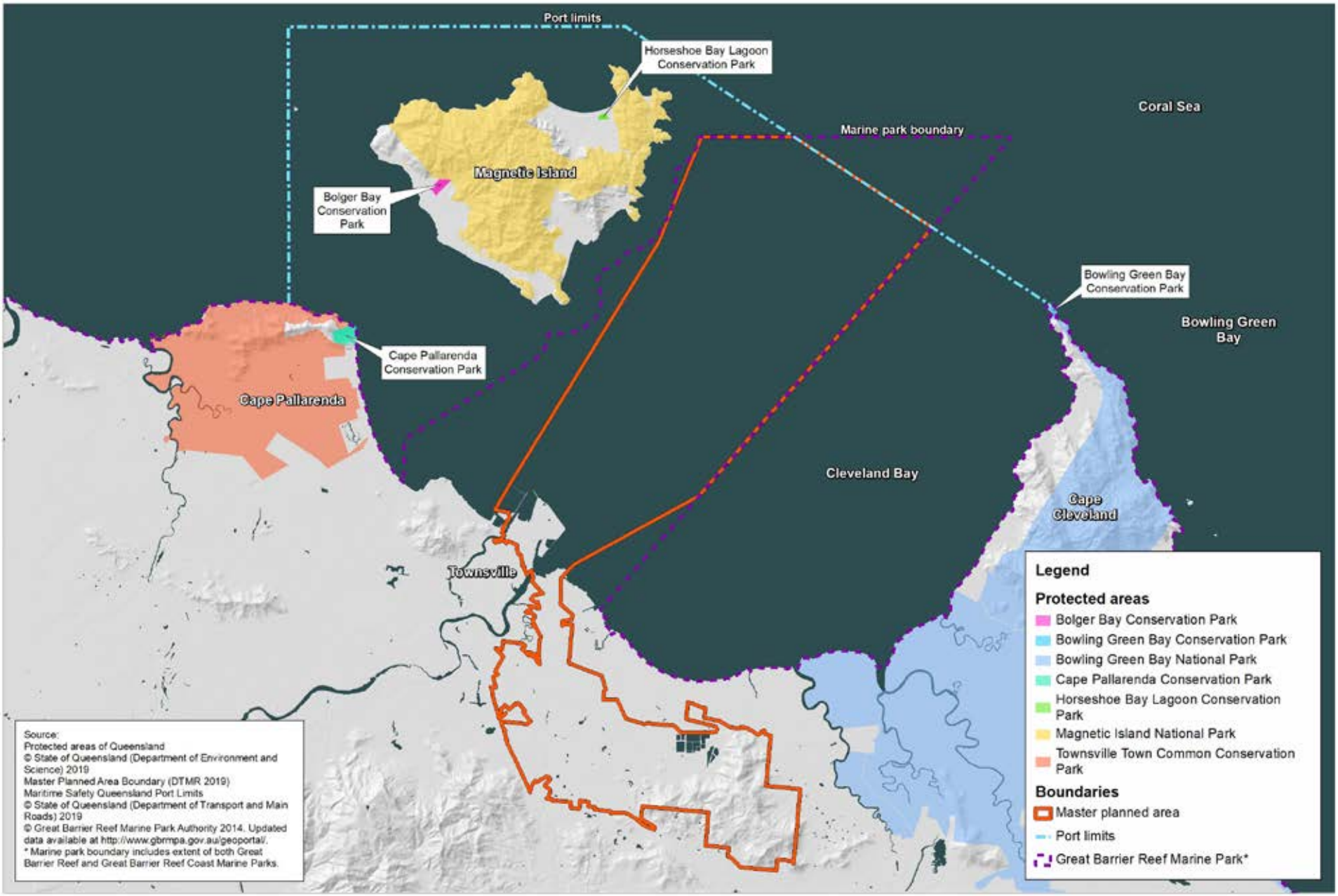


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**Figure B10: Protected areas**

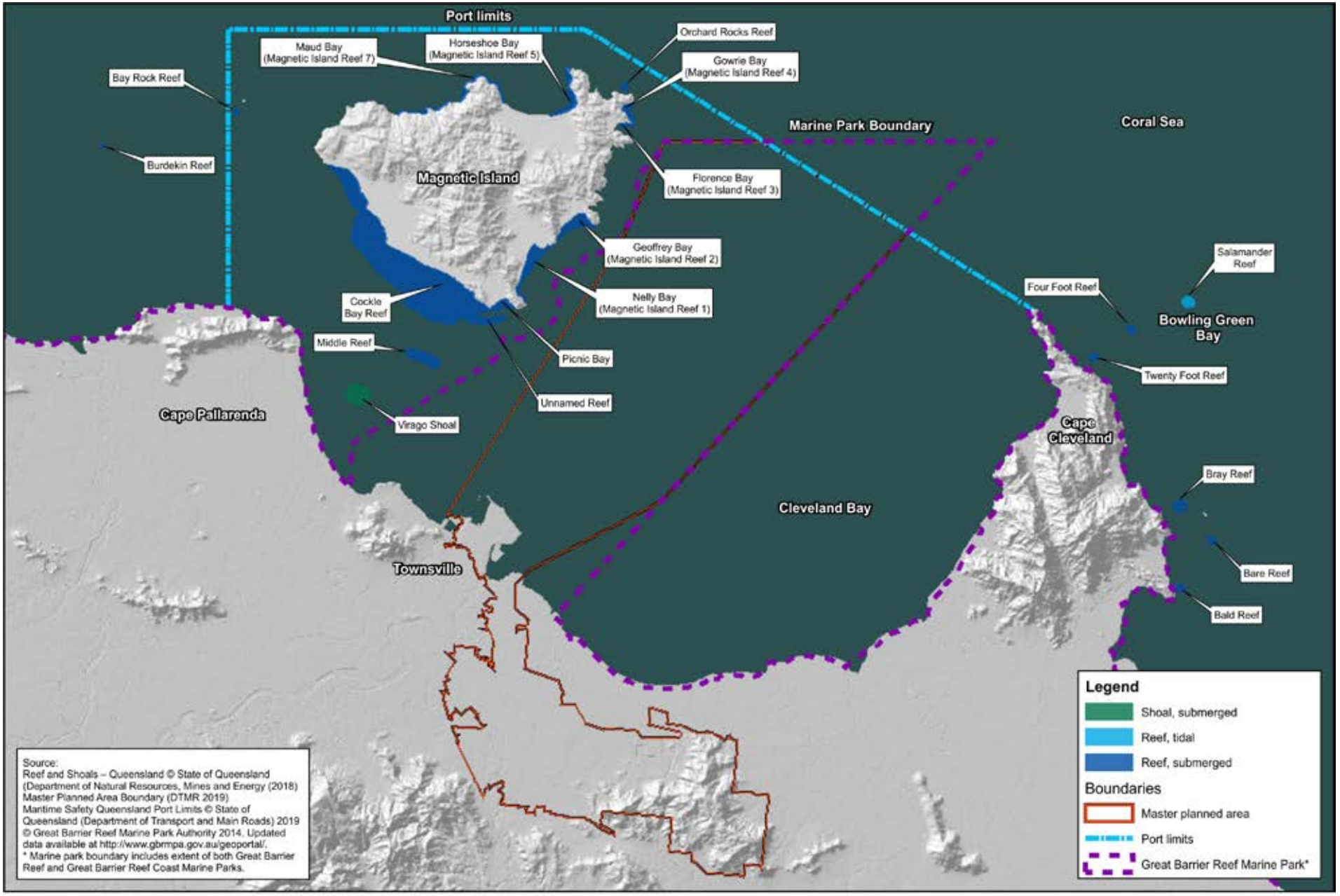


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**Figure B11: Reef and shoals**

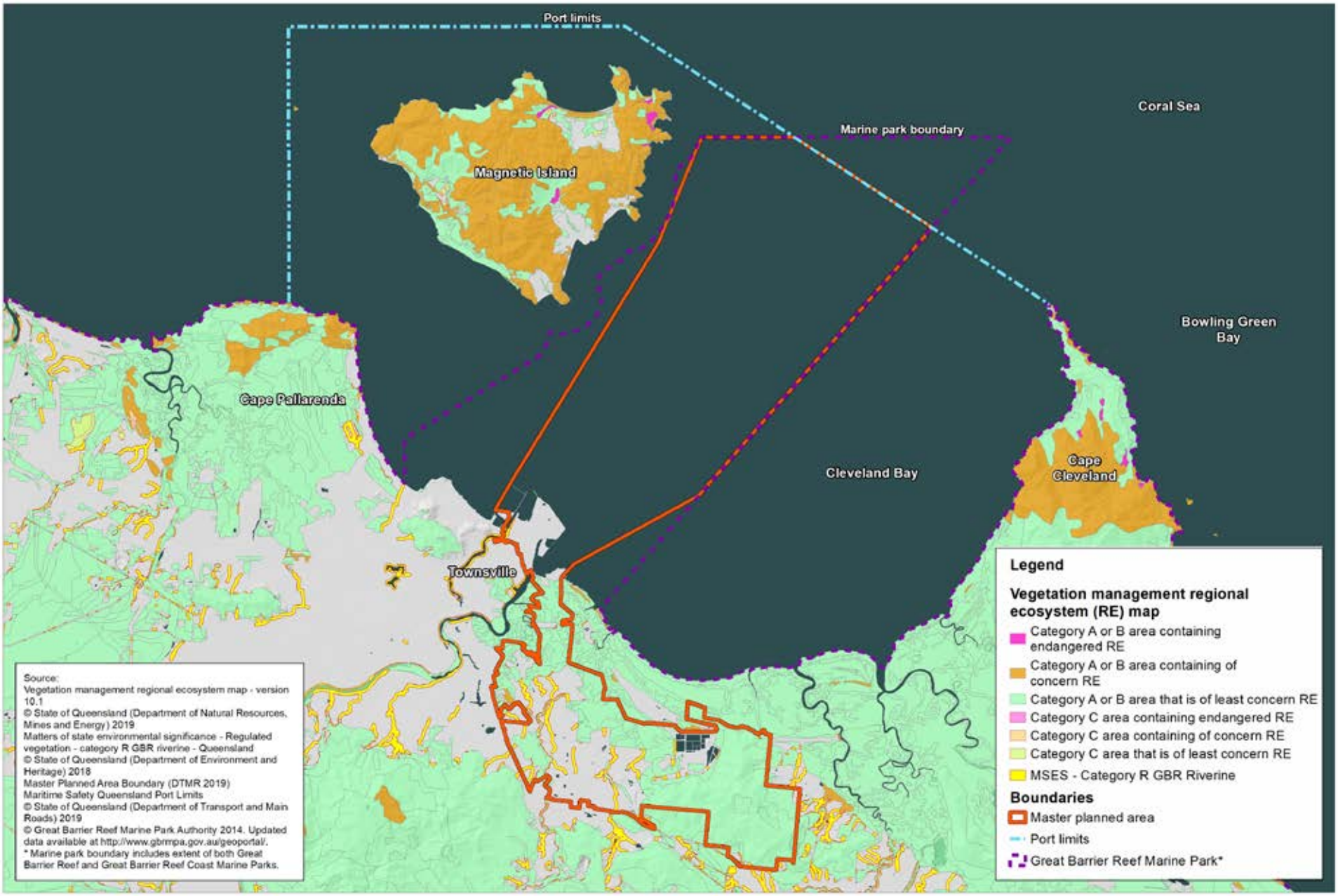


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**Figure B12: Regional ecosystems**

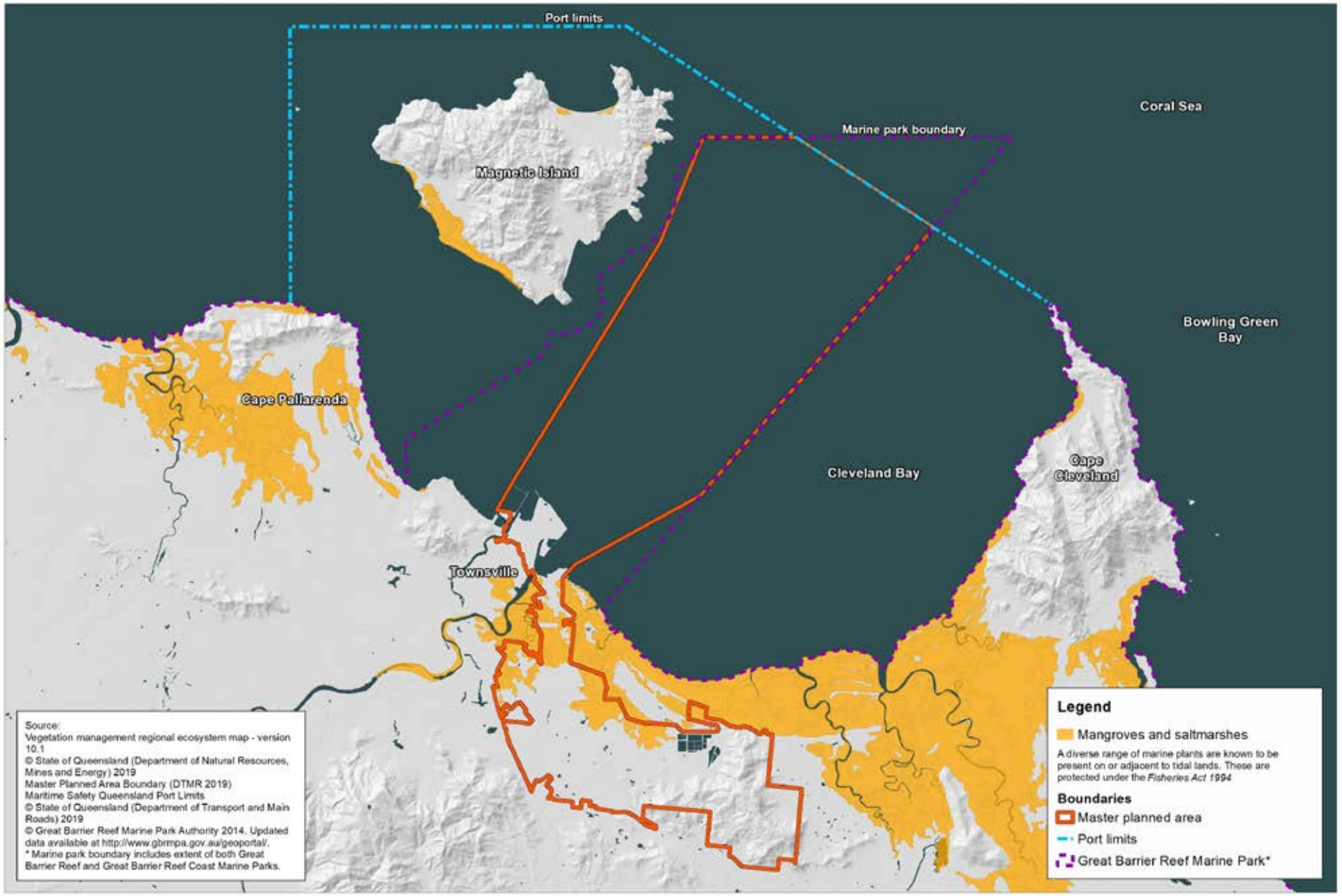


**Figure B13: Regional ecosystems containing mangroves, saltmarsh communities and marine plants**

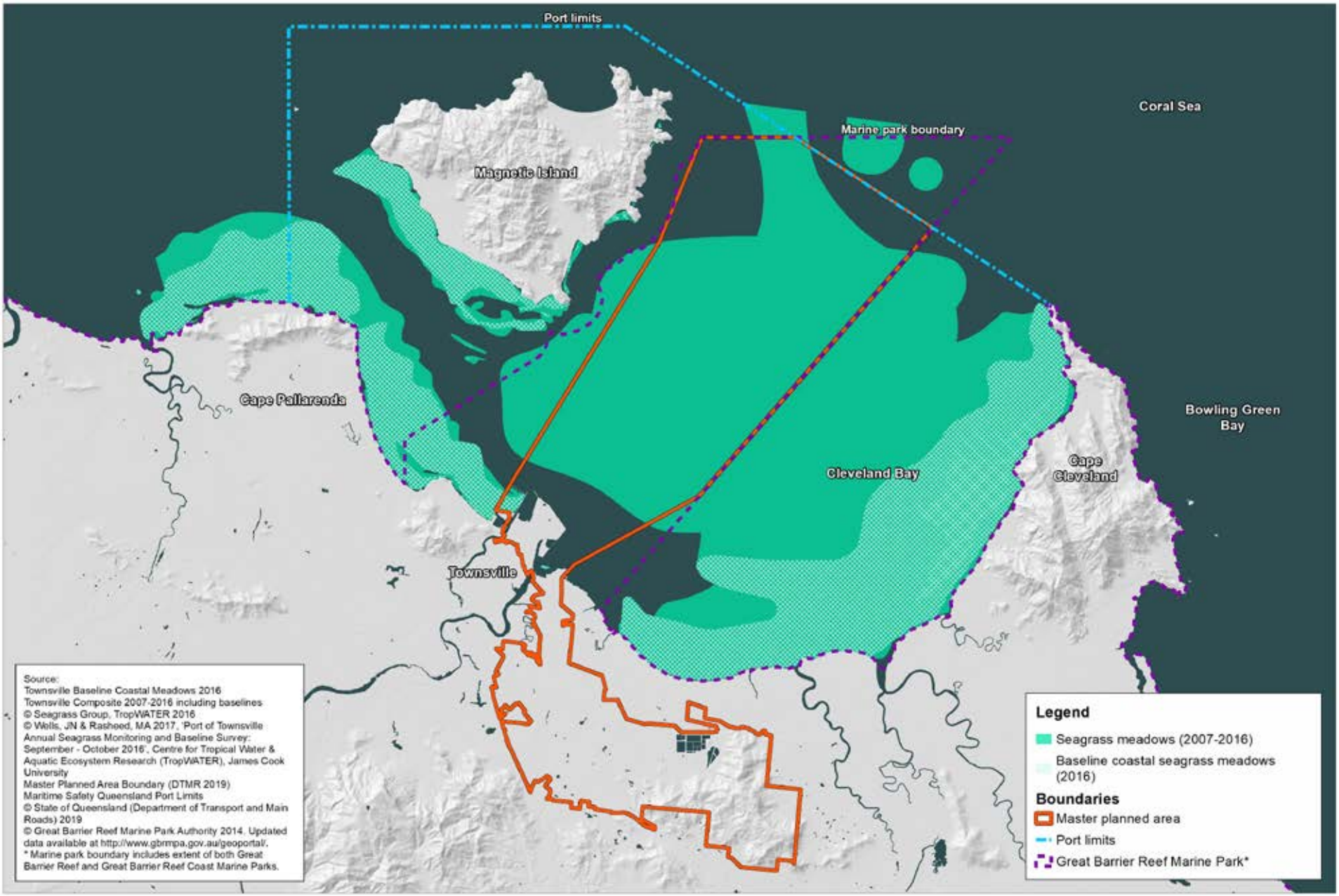


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**Figure B14: Seagrass meadows**

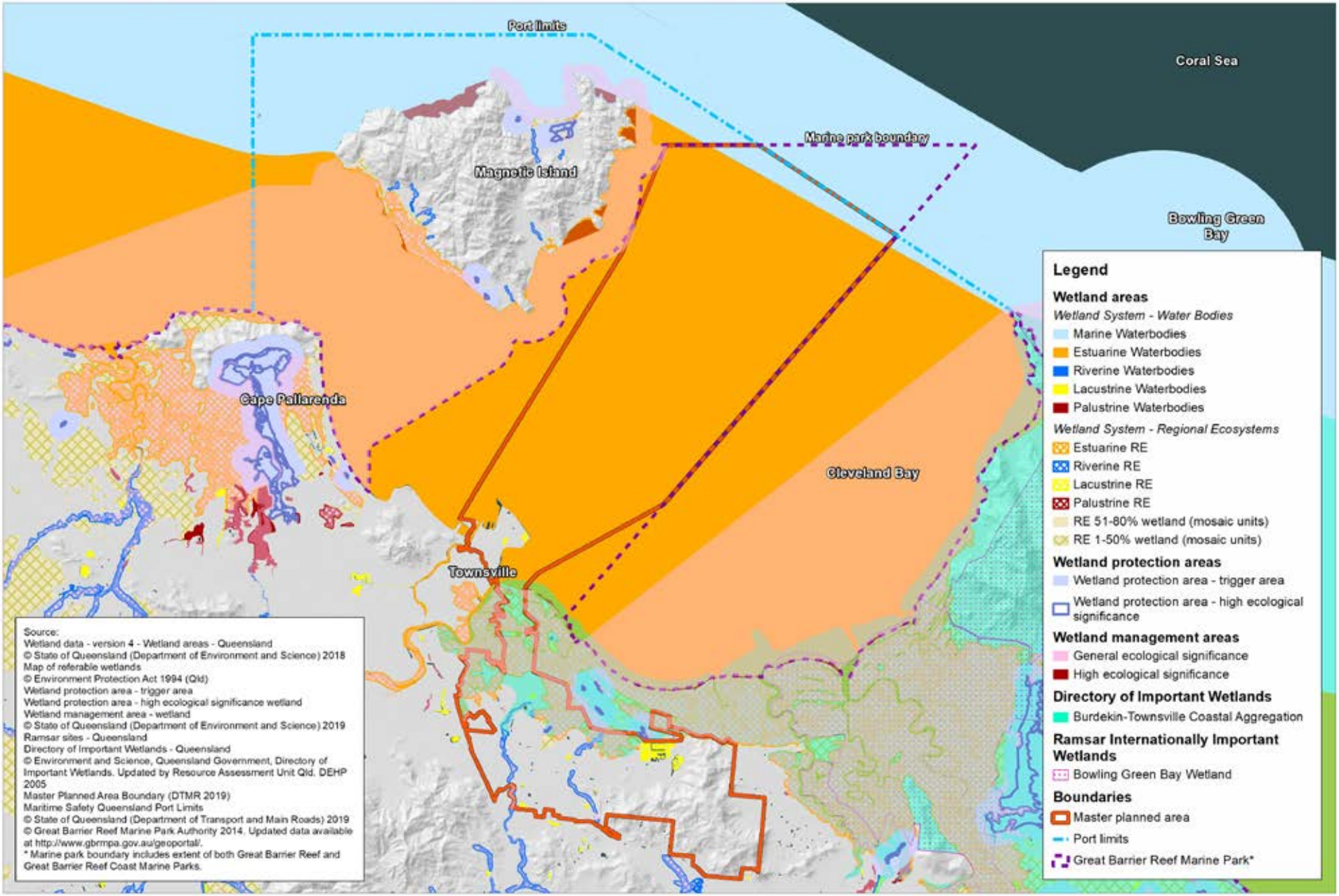


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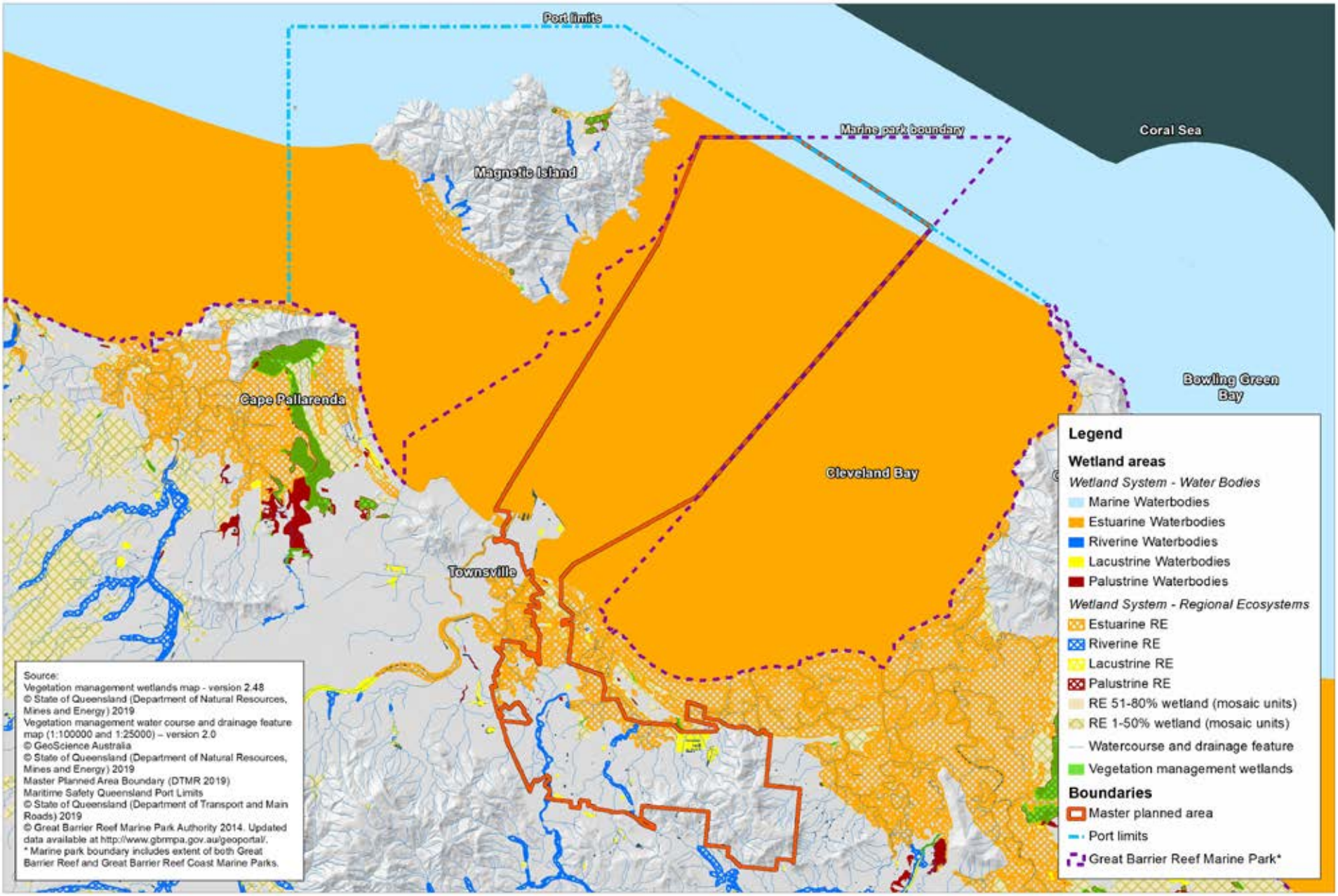
**Figure B15: Wetland protection areas**




Master plan for the priority Port of Townsville

**Figure B16: Wetlands and watercourses**

# Appendix C
## Dictionary

| Term | Definition |
|---|---|
| **adjoin (or adjoining)** | development that is directly adjacent (i.e. shares a common boundary). |
| **beneficial reuse** | dredged material that has been used for a purpose that provides social, economic or environmental benefits (or a combination of these). That is, the dredged material is managed as a valuable resource rather than a product destined for disposal. Beneficial reuse can involve the placement of dredged material on-land and in the aquatic zone (i.e. underwater or in intertidal areas). Consideration of beneficial reuse in the Queensland context to date has been focused on applications that provide economic benefits such as on-land processing and industry reuse or land reclamation (Royal Haskoning DHV and AMA 2016). |
| **capital dredging** | see *Sustainable Ports Development Act 2015* (Qld), schedule 1 . |
| **dredged material** | capital and maintenance dredged material required for the ongoing operation and future expansion of the port. |
| **dredged material placement area or areas** | existing and future potential material placement areas for the placement of dredged material from maintenance dredging. |
| **ecologically sustainable development** | see *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), *section* 3A Principles of ecologically sustainable development. Note: At the time of writing under the EPBC Act the principles of ecologically sustainable development are:<br>a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations<br>b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation<br>c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations<br>d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making<br>e) Improved valuation, pricing and incentive mechanisms should be promoted. |
| **environmental value** | see the *Environmental Protection Act 1994* (Qld), s. 9. |
| **Great Barrier Reef World Heritage Area** | The GBRWHA extends from the top of Cape York in north-east Australia to just north of Bundaberg, and from the low water mark on the Queensland coast to the outer boundary of the GBRMP, which is beyond the edge of the continental shelf. The area was declared a World Heritage Area in 1991 because of its OUV.<br>About 99 per cent of the World Heritage Area is within the GBRMP but encompasses:<br>• Some 980 islands which are under Commonwealth and Queensland jurisdiction<br>• Some internal waters of Queensland (for example, so deep bays, narrow inlets or channels between islands)<br>• All waters seaward of the low water mark from north of Bundaberg to Cape York. |
| **High Productivity Vehicles** | road freight transport vehicles which have increased transport efficiency over contemporary heavy vehicles. |

| Term | Definition |
|---|---|
| **local expression of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area** | environmental values present within and surrounding the priority Port of Townsville master planned area that contribute to the OUV of the GBRWHA.<br>*Note:* The local expression of the OUV of the GBRWHA within and surrounding the priority Port of Townsville master planned area has been identified as part of the evidence base and is specifically referred to in the master plan EMF. |
| **maintenance dredging** | dredging carried out for the purposes of removing sediments that have accumulated in existing channels, berths, approaches and swing basins of a port to maintain an approved capital dredging profile. |
| **marine megafauna** | large marine species which may include cetaceans (whales and dolphins), reptiles (marine turtles), dugongs, chondrichthyes (sharks, rays, skates and chimaeras) and pinnipeds (seals or sea lions). |
| **marine parks** | see *Sustainable Ports Development Act 2015* (Qld), s. 6(4). |
| **marine plants** | see *Fisheries Act 1994* (Qld), s. 8. |
| **master planned area** | see *Sustainable Ports Development Act 2015* (Qld), s. 6(1), however for this master plan means all of the area shown on **Figure 1** and **Appendix A**. |
| **matters of national environmental significance** | see *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), s. 34.<br>*Note:* At the time of writing the matters of national environmental significance are:<br>• world heritage properties<br>• national heritage places<br>• wetlands of international importance (often called Ramsar wetlands after the international treaty under which such wetlands are listed)<br>• nationally threatened species and ecological communities<br>• migratory species<br>• Commonwealth land and marine areas<br>• the Great Barrier Reef Marine Park<br>• nuclear actions (including uranium mining)<br>• a water resource, in relation to coal seam gas development and large coal mining development. |
| **matters of state environmental significance** | see *State Planning Policy*. |
| **offsets (environmental offset)** | see *Environmental Offsets Act 2014* (Qld) s. 7(2), and the relevant Commonwealth and state policies. |
| **Outstanding Universal Value (OUV)** | as defined in the *United Nations Educational, Scientific and Cultural Organisation Operational Guidelines for the Implementation of the World Heritage Convention* means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community. |
| **port berths** | means jetties, berths/wharves and associated infrastructure. |
| **port limits** | see *Transport Infrastructure (Ports) Regulation 2016* (Qld) schedule 2, part 2, s. 16. |

| Term | Definition |
|---|---|
| **port optimisation** | the act of making a port system, design or decision as effective or functional as possible. This may include making efficient use of strategic port land, berths and/or land-based facilities, ability to control berthing allocations and scheduling, minimising capital-intensive marine-based infrastructure, minimising the distance between land-based facilities and berths and/or minimising capital or maintenance dredging. |
| **port overlay** | see *Sustainable Ports Development Act 2015* (Qld), s. 19. |
| **priority management measures** | see *Sustainable Ports Development Act 2015* (Qld), s. 8(1)(c)(iii). |
| **priority ports** | see *Sustainable Ports Development Act 2015* (Qld) , s. 5. |
| **sensitive land use or uses** | see *Planning Regulation 2017* (Qld), *schedule 24*. |
| **Strategic Port Land (SPL)** | see *Transport Infrastructure Act 1994* (Qld), s. 267. |
| **supply chain infrastructure** | infrastructure, services and utilities identified as critical to supporting the future functioning of priority Port of Townsville, and its associated trade and economic growth for the region.<br>*Note:* This may include road, rail, marine, port and other infrastructure that service the priority Port of Townsville and associated industrial development. See **Table 1** for further information. |

# Appendix D
## Abbreviations and acronyms

| Acronym / Abbreviation | Definition |
|---|---|
| **ADF** | Australian Defence Force |
| **DMPA** | dredge material placement area |
| **EIS** | Environmental Impact Statement |
| **EMF** | *Environmental management framework* |
| **EP Act** | *Environmental Protection Act 1994 (Qld)* |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) |
| **ESD** | ecologically sustainable development |
| **GBRWHA** | Great Barrier Reef World Heritage Area |
| **GBRMPA** | Great Barrier Reef Marine Park Authority |
| **HAT** | Highest astronomical tide |
| **LMDMP** | long-term maintenance dredging management plan |
| **Maintenance dredging strategy** | *Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports* |
| **MIRL** | Mount Isa Rail Line |
| **MNES** | matters of national environmental significance |
| **MSES** | matters of state environmental significance |
| **NC Act** | *Nature Conservation Act 1992 (Qld)* |
| **NCL** | North Coast Line |
| **NWMP** | North West Mineral Province |
| **OUV** | Outstanding Environmental Value |
| **PEP** | Townsville Port Expansion Project |

| Acronym / Abbreviation | Definition |
|---|---|
| **Port** | Priority Port of Townsville |
| **POTL** | Port of Townsville Limited |
| **Ports Act** | *Sustainable Ports Development Act 2015* (Qld) |
| **QTS** | Queensland Transport Strategy (draft) |
| **Reef 2050 Plan** | Reef 2050 Long-Term Sustainability Plan |
| **SDPWO Act** | *State Development and Public Works Organisation Act 1971* (Qld) |
| **SIP** | *State Infrastructure Plan* |
| **SPL** | strategic port land |
| **SPP** | *State Planning Policy* |
| **TEARC** | Townsville Eastern Access Rail Corridor |
| **TCC** | Townsville City Council |
| **TEC** | threatened ecological community |
| **TCP** | *Transport Coordination Plan 2017-2027* |
| **TCWPDA** | Townsville City Waterfront Priority Development Area |
| **TPAR** | Townsville Port Access Road |
| **TSDA** | Townsville State Development Area |
| **UNESCO WHC** | United Nations Educational, Scientific and Cultural Organisations World Heritage Committee |
| **VM Act** | *Vegetation Management Act 1999* (Qld) |

# Appendix E

## Local attributes of Outstanding Universal Value of the Great Barrier Reef World Heritage Area

OUV is the fundamental concept of the World Heritage Convention and underpins the listing of properties on the World Heritage List. For a World Heritage property to be considered to have OUV, it must:

- meet one or more of the ten criteria set out in the convention
- meet the conditions of integrity
- meet the conditions of authenticity for cultural heritage properties
- have an adequate system of protection and management to safeguard its future.

The World Heritage Committee listed the Great Barrier Reef for the following criteria:

- criterion (vii): contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance
- criterion (viii): be outstanding examples representing major stages of earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features
- criterion (ix): be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, freshwater, coastal; and marine ecosystems and communities of plants and animals
- criterion (x): contain the most important and significant natural habitats for in situ conservation of biological diversity, including those containing threatened species of OUV from the point of view of science or conservation.

The contribution classifications for each OUV local attribute and associated environmental values have been determined as part of a comprehensive, evidence-based assessment. That assessment took account of factors including, but not limited to:

- the history, current function and land uses of the port
- regulatory context of port operations
- environmental, social and cultural heritage values represented within and surrounding the master planned area, as well as more broadly across the GBRWHA
- potential for future development.

Information used was that which was available to the master planning process at the time, which included the assessment information from the PEP. Detailed findings are reported in the evidence-based documentation available on the wesbite, with key information extracted and presented to inform the local expression of values that contribute to the OUV of the GBRWHA.

The contribution classifications are generally defined as:

- Minor contribution (Min): The attribute is present however it occurs in low abundance or singularly and is:
  - not essential to the sustainability of the attribute (e.g. substantial breeding population)
  - not recognised as a key feature of the GBRWHA
  - not included in the retrospective statement of OUV
  - not iconic, unique or a high-quality example of the attribute.
- Moderate contribution (Mod): The attribute occurs in moderate abundance or across a moderately large area but is not the prime occurrence or representation of the attribute within the GBRWHA. The attribute does however represent a feature for which the Great Barrier Reef was listed as World Heritage.
- Significant contribution (Sig): The attribute represents locally important examples of the attribute relative to the nature of the attribute across the GBRWHA. Such an attribute may be specifically referred to within the retrospective statement of OUV for the GBRWHA or defined by other legislation, planning instrument or values assessment (e.g. *Great Barrier Reef Outlook Report*). The occurrence of the attribute locally is a prime example of the features mentioned in the retrospective statement of OUV.

**Table E1** summarises the locally expressed OUV attributes within and surrounding the master planned area and their contribution classifications relative to the OUV across the entire GBRWHA. **Table E1** also includes a summary of the environmental values determined to be key contributors to the local expression of OUV of the GBRWHA within and surrounding the master planned area.

## Table E1 — Local attributes of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area

| Category | Local attribute | Relevant Outstanding Universal Value criteria and contribution classifications[1] | | | | Summary of the key environmental values |
|---|---|---|---|---|---|---|
| | | vii[2] | viii[3] | ix[4] | x[5] | |
| **Coral reefs** | String of reef structures including fringing reefs | Min | Mod | Min | - | Coral reefs are present fringing Magnetic Island and between Magnetic Island and Townsville. |
| | Hard and soft corals | Mod | - | - | - | Reef communities comprised of hard and soft corals exist around Magnetic Island, at Middle Reef and at Virago Shoal (located between Magnetic Island and Cape Pallarenda).<br>The Cockle Bay reefs, located on the south-western side of Magnetic Island, are characterised by species adapted to high siltation and turbidity associated with the coastal processes of Cleveland Bay. |
| | Coral species diversity and extent | - | Mod | - | Mod | Extensive hard and soft coral reef communities exist around Magnetic Island, at Middle Reef and at Virago Shoal.<br>Cleveland Bay also supports a network of nearshore reefs, which have different levels of inter-connectivity and habitat structure.<br>Based on mapping from the GBRMPA, the total area of reef habitat in Cleveland Bay is approximately 987 hectares. |
| | Coral spawning | Min | - | - | - | Annual coral spawning occurs at these sites, generally in October.<br>The size and density of inshore reefs does not result in the mass spawning events more commonly associated with mid shelf and outer reefs. |
| **Fish** | Significant spawning aggregations of many fish species | Min | - | - | - | Cleveland Bay provide habitat for a variety of fish species. Protected Fish Habitat Areas have been established in Cleveland Bay and in the nearby Bohle River and Bowling Green Bay. |
| **Marine megafauna** | Dugong | - | - | - | Sig | Cleveland Bay is recognised as dugong habitat and is a declared Dugong Protection Area.<br>Cleveland Bay is thought to be an important dugong habitat at a regional scale as it contains some of the most extensive and diverse seagrass meadows in North Queensland. |
| | Species of whales | - | - | - | Min | Humpback whale adults and calves have occasionally been recorded within the coastal waters of Cleveland Bay, usually during August–September. |
| | Migrating whales | Min | - | - | - | Humpback whale adults and calves have occasionally been recorded within the coastal waters of Cleveland Bay, usually during August–September. |

## Table E1 — Local attributes of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area

| Category | Local attribute | Relevant Outstanding Universal Value criteria and contribution classifications[1] | | | | Summary of the key environmental values |
|---|---|---|---|---|---|---|
| | | vii[2] | viii[3] | ix[4] | x[5] | |
| | Species of dolphins | - | - | - | Mod | Dolphin species are known or likely to occur in Cleveland Bay, including Australian snubfin dolphin, Indo-Pacific humpback dolphin, common dolphin and the bottlenose dolphin. |
| **Marine turtles** | Breeding colonies of marine turtles | Min | - | - | Min | A number of species of sea turtles, including the endangered loggerhead, green, flatback, hawksbill, olive ridley and possibly leatherback turtle species, frequent Cleveland Bay and surrounding beaches.<br>Townsville and Magnetic Island beaches are known to be regular nesting sites for green and flatback turtles. However, the density is low in comparison to other sites within the GBR. Other species of turtles forage in Cleveland Bay but are not known to nest in the area. |
| | Green turtle breeding | Min | - | - | Min | |
| | Nesting turtles / Turtle rookeries | Min | - | - | Min | |
| **Seagrass and macroalgae** | Seagrass | Sig | - | - | Sig | Cleveland Bay contains some of the most extensive and diverse seagrass meadows in North Queensland. Eight species of seagrass have been recorded in Cleveland Bay with the most extensive beds located in the eastern portion of Cleveland Bay. Smaller beds occur off the Strand, Kissing Point, Pallarenda Beach and some bays fringing Magnetic Island. |
| | Beds of *Halimeda* algae | - | - | Min | - | Halimeda beds occur around Cockle Bay (southern Magnetic island), but at the time of the 2012 reef surveys, were not found to be significant. |
| **Shorebirds and migratory seabirds** | Breeding colonies of seabirds | Min | - | - | - | A variety of seabirds are present in the marine areas, and small to moderate colonies of nesting seabirds occur within or surrounding the master planned area. |
| | Diversity of shorebirds and migratory birds | Sig | - | - | Sig | Shorebirds frequently occur within the master plan boundary area, while feeding, resting or migrating from one area to another.<br>Intertidal wetland areas provide important foraging habitat for many species of wading birds and migratory bird species, particularly the east bank of Ross River and at Cape Cleveland. |

## Table E1 — Local attributes of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area

| Category | Local attribute | Relevant Outstanding Universal Value criteria and contribution classifications[1] | | | | Summary of the key environmental values |
|---|---|---|---|---|---|---|
| | | vii[2] | viii[3] | ix[4] | x[5] | |
| **Flora, fauna and ecological communities** | Plant species diversity and endemism | - | - | - | Min | There is only very minor representation of plant species of conservation significance present within the master plan boundary area, including several threatened mangrove species and *Croton magneticus*, which is recorded on Magnetic Island.<br>One threatened ecological community has the potential to be present within the master plan boundary area — Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions — which is listed as endangered under the EPBC Act. Mapping suggests it is present on Magnetic Island and in the TSDA. |
| | Vegetated mountains | Min | - | - | - | Rugged mountains rise abruptly from the coastal plain and include Mount Stuart, as well as the landforms of Castle Hill and Magnetic Island. |
| | Mangroves | - | Min | - | - | Substantial mangrove stands occur in Cleveland Bay and around Magnetic Island.<br>The Bowling Green Bay Ramsar wetland is located to the south of Townsville. The site is significant for its extensive and diverse complex of coastal wetlands which are mostly coastal plain covered in tidal mudflats, mangrove forest and salt marshes. |
| | Mangrove species diversity | - | - | - | Sig | |
| | Vast mangrove forests | Sig | - | - | - | |
| **Continental islands** | Continental islands and green vegetated islands | Mod | Min | - | - | Magnetic Island is a continental island with rocky granite headlands, sandy bays, covered with open eucalypt woodlands and surrounded by coral reefs. |
| | Vegetation of the continental islands | Mod | - | Min | - | |
| **Geomorphology** | Spectacular sandy beaches | Min | - | - | - | Townsville and Magnetic Island have a number of sandy beaches and bays. |
| | Coral reefs | - | - | Min | - | Fringing coral reefs, Magnetic Island and coastal areas represent geomorphic processes, including ancient volcanic activity. |
| | Connectivity: cross-shelf, longshore and vertical | - | - | Min | - | The offshore areas of Cleveland Bay form part of the larger longshore connections within the GBR lagoon. |

## Table E1 — Local attributes of the Outstanding Universal Value of the Great Barrier Reef World Heritage Area

| Category | Local attribute | Relevant Outstanding Universal Value criteria and contribution classifications[1] | | | | Summary of the key environmental values |
|---|---|---|---|---|---|---|
| | | vii[2] | viii[3] | ix[4] | x[5] | |
| | Processes of geological and geomorphic evolution | | Min | | | Townsville is underlain by Quaternary-age alluvium and colluvium sediments, which, in turn, overlie basement geology comprising Late-Palaeozoic age Granite. The near surface lithology comprises Holocene sediments more than 12,000 years old, including silts, mud and sand described as coastal tidal flats, mangrove flats and saltpans. |
| | Unique and varied seascapes and landscapes | | Min | | | Cleveland Bay provides a variety of seascapes and landscapes including open water, continental islands, sandy beaches, mudflats, mangroves and vegetated hills and headlands. |
| **Marine and terrestrial fauna** | Diversity supporting marine and terrestrial fauna species (global conservation significance) | - | - | - | Mod | Cleveland Bay, Magnetic Island and surrounding areas provide habitat for a large range of species and ecosystems, the most notable being the habitats of the Bowling Green Bay Ramsar wetland area and the migratory birds that use this area. |
| **Total species diversity** | Marine diversity and including molluscs, fish, sponges and many others | - | - | Mod | - | Common benthic flora and fauna are present in the marine areas. The intertidal areas are a key habitat for many species of invertebrates (e.g. crabs, shell fish, worms). |

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

# Appendix F
## Potential impacts on environmental values

As described in the EMF in **Part D**, potential impacts have been identified based on potential development activities that may be needed to support infrastructure and supply chains within the master planned area to the year 2050. These activities were identified based on the current land uses, development potential, environmental values, and precinct purposes within existing planning instruments.

These activities were subject to a risk assessment[13] to determine the likelihood and consequence of potential impacts from development on the environmental values. Where a development activity location was unknown, the potential impacts assumed the highest conservation significance of the value.

The potential impacts from development have been identified at a high level for the purpose of the master planning due to the wide range of activities that may occur across the master planning timeframe.

As identified in **Part D**, there are state and Commonwealth legislation, state and local planning processes, operational environmental management measures and approvals that provide for the management of the potential impacts on environmental values.

| Potential impacts on environmental values | Precincts |
|---|---|
| **Marine megafauna** | |
| Direct mortality and/or injury as a result of vessel strike and/or dredging activity | Marine precinct<br>Marine infrastructure precinct<br>Port industry and commerce precinct |
| Increase in noise, vibration and disruption to behaviour/life-cycle | |
| Mortality and/or injury as a result of becoming trapped within the reclamation area | |
| Increase in lighting resulting in disruption to behaviour/life-cycle | |
| **Fish and fisheries** | |
| Mortality and/or injury as a result of becoming trapped within the reclamation area | Marine precinct<br>Marine infrastructure precinct<br>Port industry and commerce precinct |
| Smothering of benthic habitat under revetment walls | |
| Localised turbidity plumes from placement of rock armouring | |
| Operational impacts such as surface water runoff, chemical spills and dust/air quality | |
| Degradation and/or contamination of water quality from operational waste | |
| Reduction in breeding/feeding habitat due to increased sedimentation and decreased water quality from dredge plumes | |

| Potential impacts on environmental values | Precincts |
|---|---|
| **Marine and estuarine protected areas** | |
| Indirect impacts from dredging activities | Marine precinct<br>Marine infrastructure precinct<br>Port industry and commerce precinct |
| Contamination of surface water runoff as a result of chemical spills from port operations | |
| Indirect impacts from stormwater runoff | |
| Degradation of water quality from waste | |
| Changes to coastal processes indirectly impacting on areas outside of the master planned area. | |
| Smothering of benthic habitat under the reclamation area within the GBRWHA | |
| **Mangrove, saltmarsh communities and marine plants** | |
| Suspended sediment from dredge plumes accumulate in sensitive areas including beaches and intertidal areas | Marine precinct<br>Marine infrastructure precinct<br>Port industry and commerce precinct<br>Environmental management precinct<br>Infrastructure and supply chain corridors precinct |
| Changes to coastal processes resulting in erosion and accretion of sediments | |
| Indirect impacts on mangrove communities from stormwater runoff | |
| Direct clearing of mangrove, saltmarsh communities, and marine plants. | |
| **Seagrass and macroalgae** | |
| Localised turbidity plumes from placement of rock armour revetment walls | Marine precinct<br>Marine infrastructure precinct<br>Port industry and commerce precinct |
| Seepage of turbid water through the reclamation wall | |
| Operational impacts such as surface water runoff, chemical spills, and dust/air quality | |
| Increased turbidity associated with release of tailwater | |
| Increased sedimentation and turbidity from dredging activities leading to decreased water quality and reduced light attenuation | |
| **Reef communities** | |
| Indirect impacts from capital and maintenance dredging | Marine precinct<br>Marine infrastructure precinct |

| Potential impacts on environmental values | Precincts |
|---|---|
| **Remnant vegetation** | |
| Direct clearing of remnant vegetation | Environmental management precinct<br>Infrastructure and supply chain corridors precinct<br>Port industry and commerce precinct |
| Indirect impacts to remnant vegetation from stormwater runoff | |
| **Threatened flora and fauna** | |
| Direct clearing of fauna habitat | Environmental management precinct<br>Infrastructure and supply chain corridors precinct<br>Port industry and commerce precinct |
| Indirect impacts on threatened ecological communities from stormwater runoff | |
| Indirect impacts on migratory and wader bird habitat from stormwater runoff | |
| Direct mortality and/or injury to terrestrial fauna | |
| **Wetlands** | |
| Indirect impacts to wetlands from stormwater runoff | Environmental management precinct<br>Infrastructure and supply chain corridors precinct<br>Port industry and commerce precinct |
| **Listed migratory and threatened species** | |
| Temporary displacement of migratory birds during reclamation activities | Environmental management precinct<br>Marine infrastructure precinct<br>Port industry and commerce precinct |
| Temporary displacement of migratory species during construction due to indirect noise, light and dust impacts | |
| Operational impacts from noise and light | |
| Indirect impacts on a habitat from stormwater runoff | |
| **Air quality and noise** | |
| Increase disruption to behaviour/lifecycle of terrestrial and intertidal fauna during development activities | Environmental management precinct<br>Infrastructure and supply chain corridors precinct<br>Port industry and commerce precinct |
| Operational dust/air quality impacts on adjacent areas | |
| Increased dust impacts from construction on surrounding areas resulting in reduced air quality | |

| Potential impacts on environmental values | Precincts |
|---|---|
| **Water quality (marine, freshwater and groundwater)** | |
| Indirect impacts from the release of contaminants or turbid water | Environmental management precinct<br>Infrastructure and supply chain corridors precinct<br>Port industry and commerce precinct<br>Marine precinct<br>Marine infrastructure precinct |
| Increased sedimentation and turbidity from capital and maintenance dredge plumes | |
| Increased sedimentation and nutrients from construction and operational activities | |
| Disturbance of acid sulfate soils during operational works and/or construction | |
| Groundwater impacts as a result of significant earthworks | |
| **Indigenous cultural heritage** | |
| Direct impacts on cultural heritage sites during land disturbance | Environmental management precinct<br>Infrastructure and supply chain corridors precinct<br>Port industry and commerce precinct |

# Appendix G
## Environmental management framework objectives

EMF objectives have been identified for each of the master planned area precincts to avoid, mitigate and/or offset potential impacts from development within the master planned area on environmental values, including the OUV of the GBRWHA, MNES and MSES.

The EMF objectives for managing potential impacts from development within each of the precincts of the master planned area are outlined below. These objectives refer to environmental values within and surrounding the master planned area. Due to the range of potential development activities within the master planned area, the different potential impact pathways, varying sensitivities of receptors, and different biological traits of receptors (for example behaviours and responses to stress), the surrounding areas may vary from precinct to precinct.

| Precinct | Environmental management framework objectives |
|---|---|
| Environmental management | Avoids, mitigates and/or offsets potential impacts (direct, indirect and cumulative) from development within and adjacent to the precinct with particular regard to:<br>• avoiding direct impacts on threatened ecological communities under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cwlth) and Endangered and Of concern Regional Ecosystems under the *Vegetation Management Act 1999* (VM Act) (Qld)<br>• addressing the potential for cumulative impacts on environmental values from multiple developments within the Port industry and commerce precinct<br>• early detection of potential impacts on fish passage connectivity, mangroves, saltmarsh communities, and other marine plant communities<br>• conservation of habitat and connectivity for threatened and migratory species under the EPBC Act and *Nature Conservation Act* 1992 (NC Act) (Qld). |
| Infrastructure supply chain and corridors | Development operates efficiently and effectively, in a manner that appropriately balances industrial, commercial, recreational and cultural activities, and potential impacts from development on the OUV of the GBRWHA and other environmental values.<br>Consolidate infrastructure connecting the port and TSDA to minimise clearing requirements.<br>Manage ongoing operations so that the transportation of materials avoids or minimises impacts on sensitive receptors through air quality, noise, and stormwater impacts.<br>Minimise potential impacts (direct, indirect, and cumulative) from development within the precinct on the following environmental values:<br>• mangroves and other marine plants<br>• migratory shorebird habitat and populations<br>• marine and fresh water quality<br>• cultural heritage values<br>• fish passage connectivity. |
| Interface | Development incorporates design measures and other controls that avoid and minimise noise, light, visual amenity, and air quality impacts from adjoining port and industrial land uses. |

| Precinct | Environmental management framework objectives |
|---|---|
| Marine | Development avoids, mitigates and/or offsets impacts (direct, indirect, and cumulative) on the following environmental values:<br>• seagrass meadows<br>• mangroves and other marine plants<br>• migratory shorebird habitat and populations<br>• marine megafauna and habitat<br>• marine water quality<br>• cultural heritage values<br>• reef communities.<br>Development collects information that increases the understanding of the presence of attributes that contribute to the local expression of the OUV of the GBRWHA, and habitat value for other EPBC Act and NC Act species, and marine plants.<br>Development collects information to monitor changes to the environmental values, and confirm the impact from development, within the precinct on the OUV of the GBRWHA and other environmental values. |
| Marine infrastructure | Development maintains port access to, and continued operation of, shipping channels and marine based infrastructure in a manner that appropriately balances maritime safety, industrial, commercial, recreational and cultural activities and potential impacts on the OUV attributes of the GBRWHA and other environmental values.<br>Development avoids, mitigates and/or offsets direct, indirect and cumulative impacts from development on the following environmental values where possible:<br>• seagrass meadows<br>• mangroves and other marine plants<br>• migratory shorebird habitat and populations<br>• marine megafauna and habitat<br>• marine water quality<br>• cultural heritage values<br>• reef communities.<br>Development collects information that increases the understanding of the presence and contribution of attributes that contribute to the local expression of the OUV of the GBRWHA, and habitat value for other EPBC Act and NC Act species and marine plants.<br>Development collects information to monitor changes to the environmental values and confirm the impact from development within the precinct on the OUV of the GBRWHA and other environmental values. |
| Marine services and recreation | Development minimises impacts (indirect and cumulative) within the precinct on the following environmental values:<br>• mangroves and other marine plants<br>• migratory shorebird habitat and populations<br>• marine megafauna<br>• marine water quality<br>• cultural heritage values.<br>Development maintains safe access to the waterfront and harbour for commercial operations, residents, recreational users, and tourists.<br>Development within the precinct incorporates design measures and other controls that avoid and minimise noise, light, visual amenity, and air quality impacts from adjoining port and industrial land uses. |

| Precinct | Environmental management framework objectives |
|---|---|
| Port industry and commerce | Development avoids, mitigates and/or offsets impacts (direct, indirect, and cumulative) within the precinct on the following environmental values:<br>• threatened ecological communities under the EPBC Act<br>• regional ecosystems under the VM Act<br>• threatened and migratory species under the EPBC Act and NC Act<br>• seagrass meadows<br>• mangroves and other marine plants<br>• migratory shorebird habitat and populations<br>• marine megafauna<br>• freshwater, marine water and ground water quality<br>• air quality<br>• palustrine wetlands<br>• cultural heritage values<br>• reef communities<br>• fish passage connectivity.<br>Development collects information that increases the understanding of the importance of habitat for the long-term conservation of species protected under the EPBC Act , NC Act , marine plants and fish.<br>Development maintains appropriate access to areas that provide Aboriginal cultural heritage values and natural scenic amenity values that contribute to the OUV of the GBRWHA to residents, recreational users and tourists.<br>Development is appropriately located, designed and managed to avoid and minimise noise, light, visual amenity and air quality impacts on adjoining land uses. |

## Endnotes

1. Australian and Queensland governments, (2019). Mid-term plan action tracker. In The *Reef 2050 Long-Term Sustainability Plan*. Retrieved from https://www.environment.gov.au/marine/gbr/reef2050/mid-term-review .
2. Landholders will continue to require owner consent from the Queensland Government when submitting development applications for some state land or land below the high-water mark.
3. State interests in the State Planning Policy are defined under the *Planning Act 2016*, and separately under the *Economic Development Act 2012* and the Ports Act
4. State interests are defined under the Ports Act. State Interests are also separately defined under other legislation including the *Planning Act 2016* and the Economic *Development Act 2012* and continue to apply under relevant legislation.
5. For further information about specific Native title claimant areas and Native title applicants for the greater Townsville area see Appendix B – map B9.
6. The master plan does not modify requirements for development within the RAAF Base Townsville Defence Aviation Area declared under the *Defence Act 1903* (Cwlth).
7. The Coordinator-General, (2017). *Townsville Port Expansion Project: Coordinator-General's evaluation report on the environmental impact statement*. Retrieved from https://www.statedevelopment.qld.gov.au/resources/project/townsville-port/tpe-evaluation-report.pdf
8. Transitional provisions under s. 49 of the Ports Act allowed the PEP EIS to continue because the project EIS commenced prior to the commencement of the Ports Act.
9. http://epbcnotices.environment.gov.au/_entity/annotation/0f12001e-c30b-e811-9fee-005056ba00a7/a71d58ad-4cba-48b6-8dabf3091fc31cd5? t=1523926269111
10. For further information on the cultural heritage duty of care requirements, refer to the Department of Aboriginal and Torres Strait Islander Partnership, (2004). *Aboriginal Cultural Heritage Act 2003* Duty of Care Guidelines. Retrieved from https://www.datsip.qld.gov.au/resources/datsima/people-communities/culturalheritage/duty-of-careguidelines.pdf
11. Magnetic Island Community Development Association (MICDA) and Magnetic Island Nature Care Association (MINCA), (2004). *Magnetic Island's World Heritage Values – a Preliminary Assessment*, MICDA and MINCA, Magnetic Island, Queensland.
12. The local attributes contribution classifications vary for each world heritage criterion. For further information, refer to Appendix E.
13. For more detailed information refer to the Risk assessment: Priority Port of Townsville, (2018), prepared to inform the master plan. Retrieved from: https:// www.tmr.qld.gov.au/business-industry/Transport-sectors/Ports/Sustainable-port-development-and-operation/Master-planning-for-priority-ports/Masterplanning for-the-priority-Port-of-Townsville

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