



Gladstone Ports Corporation

*Growth, Prosperity, Community.*

## Chapter 14 – Landscape and Visual Character





## 14. Landscape and Visual Character

### Overview

This chapter addresses the relevant landscape and visual character components from Section 3.2.4 (Topography and Landscape Character) of the ToR for the Project (Appendix A). The topography components for the Project are addressed in Chapter 5 (Land). The potential impacts (if any) of lighting on nocturnal fauna is outlined in Chapter 9.

This chapter provides a description of the existing landscape features, panoramas and views that have, or could be expected to have, value to the community whether of local, regional, statewide, national or international significance. Potential impacts of the Project on these aspects of the environment and proposed mitigation measures are described. More detail on the methodology and scope for the Landscape and Visual Character Assessment is provided in Appendix X.

There is currently no established methodology for landscape and visual impact in Queensland and therefore the methodology for this Landscape and Visual Character Assessment was derived from:

- ▶ *Guidelines for Landscape and Visual Impact Assessment, Second Edition*, published by the Landscape Institute and Institute of Environmental Management and Assessment (2002),
- ▶ *Visual Landscape Planning in Western Australia* document produced by the Western Australian Planning Commission (2007); and
- ▶ The Forest Practice Board of Tasmania's, *A Manual for Forest Landscape Management (2006)*.

### 14.1 Description of Environmental Values

#### 14.1.1 Introduction

The proposed Western Basin Reclamation is located approximately 10 kilometres north of Gladstone, adjacent to the existing Fisherman's Landing port area and proposed Fisherman's Landing Northern Expansion.

The site is located within Port Curtis, with the landform immediately surrounding the site largely low-lying mangrove and tidal flats of the mainland and The Narrows. In these areas, the mangroves are the predominant landscape feature. The foothills and peak of Mt Larcom provide the backdrop to the west while Curtis Island binds the visual catchment to the east. The existing industrial development extending north from the Gladstone urban area is a major feature of the visual landscape. These industrial complexes include Cement Australia, Orica, Rio Tinto Alcan Yarwun (RTAY), RG Tanna Coal Terminal and NRG Power Station. The location of these industrial developments in relation to the site is shown on Figure 14-1. In addition to the existing developments, there are also industrial developments proposed for the Gladstone region that will result in changes to the visual character and landscape of the area. These developments include the Wiggins Island Coal Terminal, the proposed Gladstone Pacific Nickel plant, the proposed Fisherman's Landing Northern Expansion, and the LNG facilities proposed for Curtis Island.

Landscape features are determined and/or influenced by physical, biological and cultural factors and may include topography, soils, vegetation, and land uses. As such, landscape effects occur from



changes in the physical landscape, which may give rise to changes in its visual character and how this is experienced. This may in turn affect, the perceived value of the landscape.

This Visual Impact Assessment (VIA) describes the existing landscape and visual character within the visual catchment of the Project, identifies and assesses the existing visual context and viewpoints, undertakes an assessment of the significance of the impacts on the visual landscape and identifies the extent to which mitigation of impacts would be desirable. The visual impacts remaining after mitigation measures have been implemented are also addressed as part of this assessment (refer to Section 14.2.4).

### **Definitions Used in the Assessment**

Definitions used to describe the assessment of impact are detailed in Table 14-1. Receptor (viewer) sensitivity definitions used to describe this assessment have been outlined in Table 14-2.

**Table 14-1 Assessment of Landscape Impact**

Landscape Impact	Definition
Large	<p>A substantial / obvious change to the landscape due to total loss of, or change to, elements, features or characteristics of the landscape. Would cause a landscape to be permanently changed and its quality diminished.</p> <p>Change is likely to cause a direct adverse permanent or long term (more than 10 years) impact on the value of the receptor (viewer).</p>
Moderate	<p>Discernible changes in the landscape due to partial loss of, or change to the elements, features or characteristics of the landscape. May be partly mitigated. The change would be out of scale with the landscape, and at odds with the local pattern and landform and will leave an adverse impact on a landscape of recognised quality.</p> <p>Change is likely to impact adversely the integrity/value of the receptor but recovery is predicted in the medium term (5-10 years).</p>
Small	<p>Minor loss or alteration to one or more key landscape elements, features, or characteristics, or the introduction of elements that may be visible but may not be uncharacteristic within the existing landscape.</p> <p>Change is likely to adversely impact the integrity/value of the receptor but recovery is expected in the short term (0-4 years).</p>
Negligible	<p>Almost imperceptible or no change in the view as there is little or no loss of / or change to the elements, features or characteristics of the landscape.</p> <p>The existing landscape quality is maintained but may be slightly at odds to the scale, landform and pattern of the landscape.</p>

(Landscape Institute and Institute for Environmental Management and Assessment, 2002)



**Table 14-2 Assessment of Receptor Sensitivity**

Sensitivity	Definition
<b>High</b>	<ul style="list-style-type: none"> <li>▶ Occupiers of residential properties within close proximity to the proposed development.</li> <li>▶ Users of outdoor recreational area including nature reserves, and nature based recreation (walking, horse riding trails, water based activities such as swimming and fishing, or public look-out point) where their attention is focussed, in part, on the landscape and its amenity.</li> <li>▶ Communities that place value upon the landscape and enjoyment of views of their landscape setting.</li> </ul>
<b>Medium</b>	<ul style="list-style-type: none"> <li>▶ Outdoor workers who have a key focus on their work who may also have intermittent views of the Project area.</li> <li>▶ Outdoor recreation users (i.e. sporting activities) where their attention is focussed predominately on the activity being undertaken.</li> <li>▶ Occupiers of residential properties with long viewing periods, at a distance from or predominantly screened from the Project area.</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>▶ Road users in motor vehicles, trains or on transport routes that are passing through or adjacent to the study area, where there are no stopping points or lookouts, therefore having short term views.</li> <li>▶ Viewers indoor at their place of work.</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>▶ Viewers from locations where there is screening by vegetation or structures where only occasional screened views are available and viewing times are short.</li> <li>▶ Road users in motor vehicles, trains or on transport routes that are passing through/adjacent to the study area and have partially screened views and short viewing times.</li> </ul>

(Landscape Institute and Institute for Environmental Management and Assessment, 2002)

***Significance of Impact***

For the purposes of this assessment, predicted impacts as a direct result of the Project have been described according to their significance, which is a function of the magnitude of the impact and the sensitivity of the receptor as detailed in Table 14-3. Only impacts considered being of major or high significance are considered as significant for the purposes of this assessment.



**Table 14-3 Significance of Impact**

		Landscape Impact			
		Large	Moderate	Small	Negligible
Visual Sensitivity	High	Major Significance	High Significance	Moderate Significance	Minor Significance
	Medium	High Significance	Moderate Significance	Minor Significance	Not Significant
	Low	Moderate Significance	Minor Significance	Not Significant	Not Significant
	Negligible	Minor Significance	Not Significant	Not Significant	Not Significant

(Landscape Institute and Institute for Environmental Management and Assessment, 2002)

#### 14.1.2 Landscape Character

The following section provides an overview of the existing landform, land uses and vegetation in the vicinity of the proposed Reclamation Area. These features all contribute to the landscape and visual character of the area.

##### **Landform**

The proposed Reclamation Area is located within the waters of Port Curtis adjacent to the existing Fisherman’s Landing Reclamation Area and the proposed Fisherman’s Landing Northern Expansion, and to the south of The Narrows. The landform in the Gladstone region in the vicinity of the site is characterised by flat tidal and inter-tidal areas dominated by mangroves, extending into the foothills and ranges of the surrounding Mountains, including Mt Larcom, which is a dominant landscape feature of the region.

Curtis Island, located to the north-east of Gladstone, has an undulating landform that provides a vegetated backdrop to the visual landscape.



Mt Larcom and associated mountain range is a dominant landscape feature in the Gladstone Region

##### **Land Use**

Gladstone provides regional centre facilities for the region, and is also a major port and industrial centre for Queensland. Extending north of the city the land uses are dominated by industrial activities, including the RG Tanna Coast Terminal, NRG, Orica, Rio Tinto Aluminium Yarwun, and Cement Australia. The



Gladstone State Development Area, located in identified precincts to the north of the urban area of the city, incorporates most of these industrial land uses. The Port of Gladstone provides existing facilities and through its 50 Year Strategic Plan identified that the main focus of the port's future growth will be the Western Basin. Other land uses in the Gladstone region predominantly include rural activities.

### ***Curtis Coast Regional Coastal Management Plan***

The State Coastal Management Plan incorporates three principles relating to coastal landscapes:

- ▶ “The values of coastal landscapes are conserved and recognised for their importance to the quality of life of both residents and visitors, as well as to the economic development and growth of Queensland;
- ▶ The dominance of the natural character of the coast (excluding developed urban areas) is retained, including elements of landscape and vegetation; and
- ▶ The cultural and spiritual values of coastal landscapes are recognised and conserved through the involvement of the relevant Indigenous Traditional Owner communities.”

The site is located within the area covered by the Curtis Coast Regional Coastal Management Plan. Regional policy 2.7 relates to Coastal Landscapes with the coastal management outcome being that *“the scenic and cultural values associated with coastal landscapes are protected”*. The areas of state significance (scenic coastal landscapes) are identified in Schedule 1 of the management plan. The regional direction for implementation of State Coastal Plan policy includes:

- ▶ Development within “areas of state significance (scenic and coastal landscape)” is located and designed so that it does not detract from the scenic coastal landscape values; and
- ▶ Further investigations be undertaken into coastal landscape values, where practical, as part of the strategic planning or where development has the potential to significantly adversely affect these values. These investigations should be undertaken in consultation with the community.

The information provided in Schedule 1 of the Curtis Coast Regional Coastal Management Plan provides the guidance to ensure that ‘areas of state significance (scenic coastal landscapes)’ are not degraded. This information has been used in the identification of mitigation measures for this project.

### ***Vegetation***

The Gladstone region comprises land in both the South East Queensland and Brigalow Belt Bioregions. The Burnett Curtis Hills and Ranges subregion of the South East Queensland Bioregion is geologically diverse and includes granite hills and ranges that characterise the ranges including Mt Larcom. The main vegetation in these areas includes *Eucalyptus crebra* and *Corymbia citriodora* woodlands, and mixed eucalypt forests. Formerly cleared areas consist of patches of remnant and regrowth vegetation. The low-lying coastal zone is dominated by mangrove and inter-tidal vegetation.

### **14.1.3 Visual Catchment and Viewpoints**

#### ***Visual Catchment***

The identification of the visual catchment of the Project provides an assessment tool which assists in defining the area from which the Project may be visible. Site assessment further defines the locations within the visual catchment from which the Project site is visible and the viewpoints from which detailed visual impact assessment will be undertaken.



The visual catchment of the Project extends over the ridges and high points of the city and incorporates both residential and commercial development, recreation areas and lookouts, as well as views from boats using Port Curtis. The visual catchment for the Project is demonstrated in Figure 14-1 and includes:

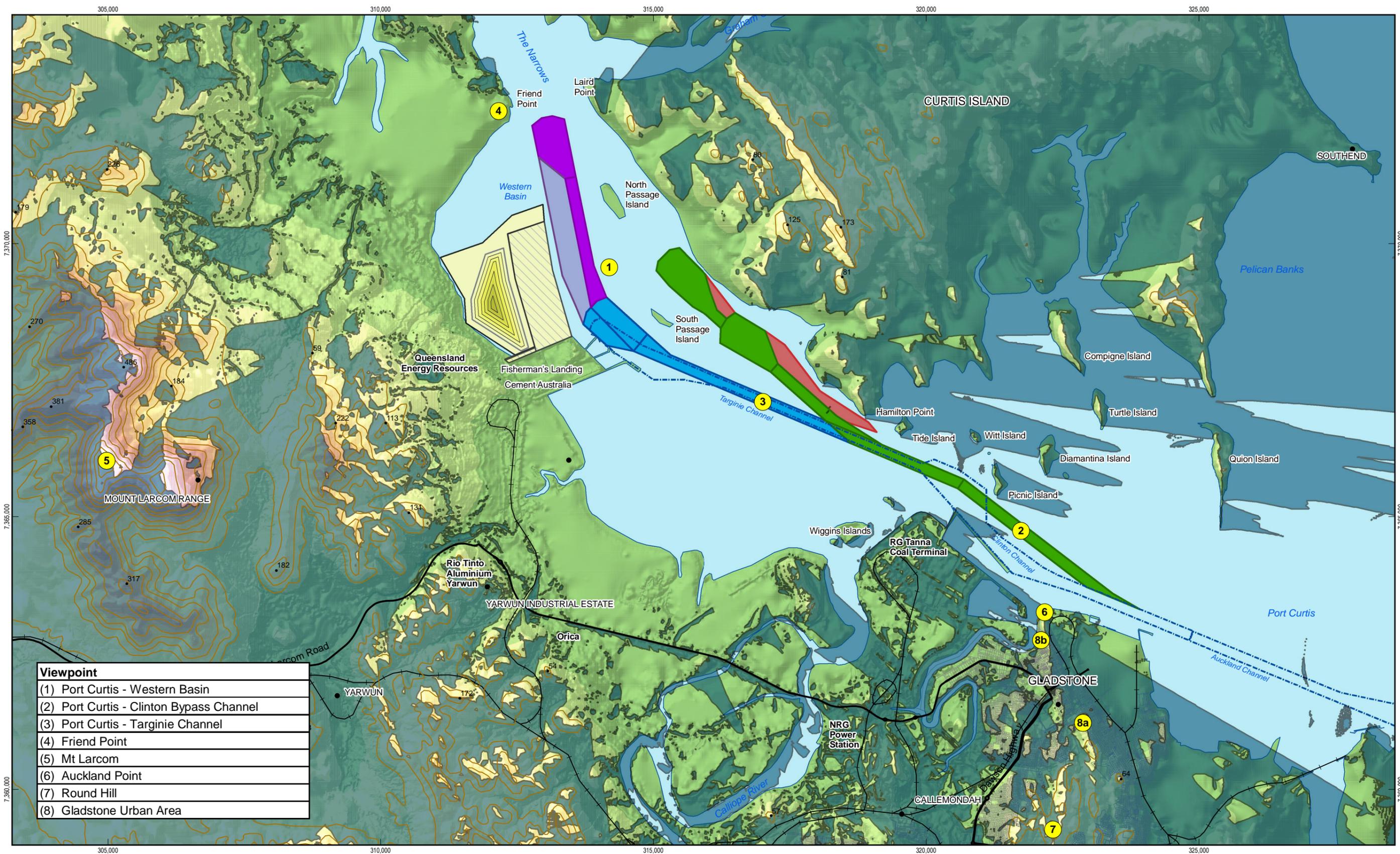
- ▶ Port Curtis waters, in particular:
  - The area within Western Basin between the site area and Curtis Island;
  - The area to the north-east of the site within the Targinie Channel; and
  - The area to the south-east of the site within the Clinton Bypass Channel.
- ▶ Mt Larcom and adjacent ranges – these form the western extent of the visual catchment with views of the site available from this location;
- ▶ Friend Point provides immediate views to the Reclamation Area and the dredging channels; and
- ▶ Auckland Point, Round Hill and the elevated sections of the Gladstone urban area – lookouts, parks, recreation areas, residential and commercial properties with views to the north and north-west are included within the visual catchment of the Project.

### ***Viewpoints and Sensitive Receptors***

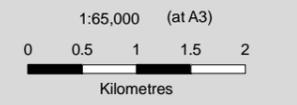
The visual catchment provides the basis upon which viewpoints and sensitive visual receptors can be identified and further assessment undertaken. The viewpoints are areas where full or screened views of the site are possible and there is human activity being undertaken. This activity may include residential, business or recreation. In addition, viewpoints also include areas where the only views are transient, such as vehicles using a road or views from trains. The viewpoints that have been chosen for assessment in this report are representative of the available views and are locations where there is human activity occurring.

The viewpoints that have been identified and assessed in this report are listed below and are shown on Figure 14-1:

- |  |                          |
|--|--------------------------|
| 1. Port Curtis - Western Basin;          | 6. Auckland Point;       |
| 2. Port Curtis – Targinie Channel;       | 7. Round Hill; and       |
| 3. Port Curtis – Clinton Bypass Channel; | 8. Gladstone Urban Area. |
| 4. Friend Point;                         |                          |
| 5. Mt Larcom;                            |                          |



Viewpoint	
(1)	Port Curtis - Western Basin
(2)	Port Curtis - Clinton Bypass Channel
(3)	Port Curtis - Targinie Channel
(4)	Friend Point
(5)	Mt Larcom
(6)	Auckland Point
(7)	Round Hill
(8)	Gladstone Urban Area



**LEGEND**

- View Point
- Town and Locality
- Contour (50m interval)
- Railway
- Major Road
- Western Basin Reclamation Area
- Fisherman's Landing Northern Expansion
- Visual Catchment of Western Basin Reclamation
- Visible
- Not Visible
- Stage 1A - North China Bay LNG Precinct
- Stage 1B - Fisherman's Landing LNG
- Stage 2 - Laird Point LNG
- Stage 3 - Fisherman's Landing
- Stage 4 - Hamilton Point
- Existing Channels, Swing Basins and Berths



Port of Gladstone  
Western Basin Dredging and Disposal Project

Visual Catchment  
and Viewpoints

Job Number	42-15386
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Figure 14-1



**Viewpoint 1 - Port Curtis – Western Basin**

The Western Basin area and the surrounding waterways of Port Curtis are popular locations for both recreational and commercial water based activities. Watercraft accessing this area and travelling through have extensive views of the Reclamation Area and the surrounding built and natural environment.

This viewpoint relates specifically to the area between the Reclamation Area and Curtis Island at the northern end of Port Curtis. Table 14-4 identifies the existing visual context of this area.

**Table 14-4 Viewpoint 1 - Port Curtis – Western Basin Visual Context**

Typical local landscape character



Existing industrial development in the foreground with the coastal vegetation and topography identifying the flat coastal landform. Mt Larcom and the surrounding ranges form the visual backdrop from this viewpoint.



Existing Fisherman’s Landing Northern Expansion as viewed from Port Curtis. The Orica ammonia storage tank is a distinguishing feature from this location with the mountain range forming a visual backdrop to the west of the site. The flat relief of the largely undeveloped Reclamation Area does not significantly impact on background views particularly when distance from the bund walls increases.



Panoramic view of the existing Fisherman's Landing port facilities, including the Reclamation Area, Cement Australia, and the facilities associated with the shale oil project.

<p>Landform</p>	<p>The land immediately surrounding Port Curtis is generally low-lying up to the slopes of Curtis Island and the foothills of Mt Larcom and adjacent ranges.</p> <p>The vegetated hills and ridges of Curtis Island provide a distinct landscape character and are visually appealing.</p>
<p>Vegetation</p>	<p>The vegetation of this view point is characterised by mangroves and inter-tidal vegetation. The vegetation on the upper slopes is predominantly eucalypt species.</p>
<p>Land Use</p>	<p>The land uses in the vicinity of this viewpoint are characterised by large industrial development and low-lying undeveloped foreshore areas. Approvals for further industrial development on Curtis Island, the Fisherman's Landing Northern Expansion, and the mainland will reinforce the increasing industrial nature of the land use in the vicinity of the site.</p>
<p>Visual Context</p>	<p>Fisherman's Landing Northern Expansion and port facilities are a strong element in the visual landscape when viewed from water level and close to the facilities. The existing industrial developments are visible at night from Port Curtis due to operational and security lighting provided as part of these land uses.</p> <p>The proximity of Curtis Island provides a vegetated backdrop to the south and south-east from this viewpoint enclosing the view in this direction.</p> <p>The fringing mangroves provide a vegetated backdrop to the water, with the background views framed by Mt Larcom and associated ranges to the west, Curtis Island to the east and the Narrows to the north.</p> <p>Views from this viewpoint are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Water based recreation users including people fishing and using recreational water craft; and</li> <li>▶ Commercial water based users, largely activity focused.</li> </ul>



**Viewpoint 2 – Port Curtis - Targinie Channel**

Targinie Channel is located south east of Fisherman’s Landing and is proposed as one of the key dredging areas of the Western Basin project. This channel is currently used for fishing and recreation purposes and for commercial ship movements accessing the port facilities. The existing visual context when viewed from the Targinie Channel is described in Table 14-5.

**Table 14-5 Viewpoint 2 – Port Curtis - Targinie Channel Visual Context**

<p>Typical local landscape character</p>	
	<p>Existing Fisherman’s Landing development when viewed from Targinie Channel. The landscape character is dominated by the background views of Mt Larcom to the west and Curtis Island to the east while the industrial and port related development is a visually prominent feature of the foreground and middleground views.</p>
<p>Landform</p>	<p>Targinie Channel sits within Port Curtis, between Curtis Island and Gladstone City. The land immediately surrounding Port Curtis incorporates the low lying areas immediately adjacent to the coast and the undulating land of Gladstone city area and Curtis Island.</p>
<p>Vegetation</p>	<p>The vegetation adjacent to this viewpoint is characterised by fringing mangroves, vegetation associated with the Gladstone urban area and the coastal vegetation of Curtis Island.</p>
<p>Land Use</p>	<p>The land uses in the vicinity of this viewpoint are characterised by large industrial and port development, and the urban development associated with the urban area of Gladstone.</p>
<p>Visual Context</p>	<p>The site is located within Port Curtis in close proximity to existing port and industrial development with extensive shipping movements. When viewed from the water, the existing port and industrial developments dominate the foreground views to the west with the vistas to the north and north east still providing views of largely natural areas. The existing industrial developments are visible at night from Port Curtis due to operational and security lighting provided as part of these land uses.</p> <p>The port facilities are a strong visual element in the landscape when viewed from water level, while the background views are framed by Mt Larcom and associated ranges to the west and Curtis Island to the east.</p> <p>Views from this viewpoint are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Water based recreation users including people fishing and using recreational water craft; and</li> <li>▶ Commercial water based users, largely activity focused.</li> </ul>



**Viewpoint 3 – Port Curtis - Clinton Bypass Channel**

Clinton Bypass Channel is part of Port Curtis and runs adjacent to Wiggins Island and RG Tanna Coal Terminal. The existing visual context viewed from Clinton Bypass Channel is described in Table 14-6.

**Table 14-6 Viewpoint 3 – Port Curtis - Clinton Bypass Channel Visual Context**

<p>Typical local landscape character</p>	 <p>Existing port facilities located in the vicinity of Clinton Channel. The visual character of this area when viewed from the water is dominated by industrial and port development.</p>
<p>Landform</p>	<p>The land immediately surrounding Clinton Bypass Channel is generally low-lying coastal land with this extending into the slopes of Curtis Island and the foothills of Mt Larcom and adjacent ranges.</p>
<p>Vegetation</p>	<p>The vegetation adjacent to this viewpoint is characterised by mangroves and inter-tidal vegetation.</p>
<p>Land Use</p>	<p>The land uses in the vicinity of this viewpoint are characterised by large industrial development and low-lying undeveloped foreshore areas. Approvals for further industrial development, both on Curtis Island and the mainland, will reinforce the industrial nature of land uses in the vicinity of the site.</p>
<p>Visual Context</p>	<p>The site is located within Port Curtis within close proximity to existing port and industrial development with extensive shipping movements. When viewed from the water the existing port and industrial developments dominate the foreground views to the west with the vistas to the north and north east still providing views of largely natural areas. The existing industrial developments are visible at night from Port Curtis due to operational and security lighting provided as part of these land uses.</p> <p>The port facilities are a strong visual element in the landscape when viewed from water level, while the background views are framed by Mt Larcom and associated ranges to the west, Curtis Island to the east and the Narrows to the north.</p> <p>Views from this viewpoint are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Water based recreation users including people fishing and using recreational water craft; and</li> <li>▶ Commercial water based users, largely activity focused.</li> </ul>



**Viewpoint 4 – Friend Point**

Friend Point is located immediately adjacent to the Project area, more specifically on the north boundary of the Reclamation Area. Used primarily for recreational purposes such as fishing, this location provides an important point of public access to the northern part of Port Curtis and The Narrows. The existing visual context viewed from Friend Point is described in Table 14-7.

**Table 14-7 Viewpoint 4 – Friend Point Visual Context**

Typical local landscape character



View from Friend Point towards Fishman’s Landing and Gladstone

Landform	The land surrounding Friend Point is generally low-lying and comprising mangroves, mudflats and other coastal vegetation. Foothills of Mt Larcom and adjacent ranges lie to the west of the site, while the vegetated slopes of Curtis form the eastern background of this viewpoint.
Vegetation	The vegetation in the vicinity of this viewpoint is characterised by mangroves and inter-tidal vegetation.
Land Use	The land in the immediate vicinity of this viewpoint is largely undeveloped with middle and background views of the industrial development to the south and south-west.
Visual Context	<p>This viewpoint is located at the northern end of Port Curtis within an area that is comprised of both natural vegetated areas, and the Narrows. From this location the existing facilities of the Fisherman’s Landing port area and other associated and nearby industrial development are also visible. The existing industrial developments are visible at night from Port Curtis due to operational and security lighting provided as part of these land uses.</p> <p>Other strong visual elements within the landscape include the vegetation surrounding the Reclamation Area, Curtis Island and Targinie Creek. The view to the west is framed by Mt Larcom and associated ranges.</p> <p>Views from this viewpoint are primarily experienced by:</p> <ul style="list-style-type: none"> <li>▶ Land-based recreation users;</li> <li>▶ Water-based recreation users, including people fishing and using recreational water craft; and</li> <li>▶ Commercial water based users.</li> </ul>



**Viewpoint 5 - Mt Larcom**

Mt Larcom is located west of the site and due to its elevation, provides 360 degree views of Gladstone and the surrounding area. The Mountain is accessible via a walking track. The existing visual environment from Mt Larcom is outlined in Table 14-8.

**Table 14-8 Viewpoint 5 - Mt Larcom Visual Context**

<p>Typical local landscape character</p>	 <p>Panorama of the view to the east from the top of Mt Larcom. This location provides extensive views of the region and is accessible via walking tracks.</p>
<p>Landform</p>	<p>Mt Larcom forms a visual backdrop to Gladstone through being a dominant landscape feature. The mountain is steeply sloping in parts and provides for extensive views over Gladstone and the surrounding region.</p>
<p>Vegetation</p>	<p>Mt Larcom and its foothills are vegetated, providing a vegetated visual backdrop to the region. The vegetation on Mt Larcom is predominantly eucalypt species.</p>
<p>Land Use</p>	<p>Mt Larcom is located within an area comprised of conservation and forestry zonings.</p>
<p>Visual Context</p>	<p>Access to the top of Mt Larcom is available via a walking track. This track is currently not well used by the community but also provides access to the telecommunication facility located at the top of the mountain.</p> <p>Mt Larcom provides extensive 360 degree views incorporating Gladstone and the surrounding area.</p> <p>Views from this viewpoint are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Recreation users who have accessed the view point from the walking track. The interest in the landscape may incorporate both the built and natural environment. These viewing opportunities would largely be of short duration; and</li> <li>▶ Activity focused workers servicing the telecommunications device located on the mountain.</li> </ul>



**Viewpoint 6 - Auckland Point**

Auckland Point is a public park area that includes a popular lookout point over northern Gladstone, Port Curtis, the surrounding coast and the mountains to the west. The location provides some visitor facilities including parking, picnic facilities, toilets and a cafe. The project site is located approximately 10 km to the north. A description of the existing visual context of this viewpoint is contained in Table 14-9.

**Table 14-9 Viewpoint 6 - Auckland Point Visual Context**

<p>Typical Landscape Character</p>	
<p></p>	<p>Panorama of the view from Auckland Point Lookout. View north-west from Auckland Point Lookout incorporates an island located within the foreground, the existing Gladstone marina facilities and the RG Tanna Coal Terminal. Mt Larcom and Curtis Island form the backdrop to the views from this location and are dominant background landscape features.</p>
<p>Landform</p>	<p>Auckland Hill rises to approximately 32 m AHD, making it one of the highest points on the coastline. This site forms part of a ridge that extends through the northern suburbs of the city.</p>
<p>Vegetation</p>	<p>Urban landscape planting.</p>
<p>Land Use</p>	<p>This site comprises James Cook Park and a lookout with associated visitor facilities.</p>
<p>Visual Context</p>	<p>Elevated viewpoint with visitor lookout facilities that provide foreground views of the Gladstone Marina and the RG Tanna Coal Terminal, a small island located with Port Curtis, with middle ground views of Port Curtis, Curtis Island and industrial development located to the north of Gladstone. The background views from this location are comprised of Mt Larcom and Curtis Island.</p> <p>The existing industrial developments located within the visual outlook from this viewpoint are visible at night due to operational and security lighting provided as part of these land uses.</p> <p>Views from this location are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Visitors to the lookout whose interest is focused on the surrounding landscape. The interest in the landscape may incorporate both the built and natural environment. These viewing opportunities would be primarily of short duration; and</li> <li>▶ Road users travelling to the lookout.</li> </ul>



**Viewpoint 7 - Round Hill**

Round Hill is one of the highest points in the urban area of Gladstone and provides a vehicle accessible lookout for residents and visitors. There is a telecommunication facility also located on the hill. Due to the elevation, the lookout provides extensive views of Gladstone and the surrounding area. This viewpoint is located approximately 12 km from the Project area. A description of the existing visual context of this viewpoint is contained in Table 14-10.

**Table 14-10 Viewpoint 7 - Round Hill Visual Context**

<p>Typical local landscape character</p>	
	<p>Existing view to the north and north-west from the Round Hill lookout. The existing Fisherman's Landing development can be seen in the background from this viewpoint. Mt Larcom provides a visual backdrop.</p>
	<p>Existing view to the north and north-west from the Round Hill lookout. The Fisherman's Landing development is a feature of the background view from this location.</p>
<p>Landform</p>	<p>Round Hill is one of the highest points in the urban area of Gladstone, having an elevation of 126 m AHD. This site forms part of a ridge that extends through the northern suburbs of the city.</p>
<p>Vegetation</p>	<p>Round Hill is located within an area of native bushland.</p>



Land Use	The site contains a park and lookout with associated vehicle parking. There is also a telecommunications facility located on the hill.
Visual Context	<p>Elevated viewpoint that provides foreground views of the northern suburbs of Gladstone with middle ground views of the industrial development to the north of the city, Port Curtis and Curtis Island to the east. Background views extend to Mt Larcom and the surrounding ranges to the west.</p> <p>The existing industrial developments located within the visual outlook from this viewpoint are visible at night due to operational and security lighting provided as part of these land uses.</p> <p>Views from this location are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Visitors to the lookout whose interest is focused on the surrounding landscape. The interest in the landscape may incorporate both the built and natural environment. These viewing opportunities would be primarily of short duration; and</li> <li>▶ Road users travelling from the lookout.</li> </ul>

**Viewpoint 8 - Gladstone Urban Area**

The residential properties located on the north facing elevated parts of Gladstone have views towards the Project site (Table 14-11). These viewpoints incorporate the residential areas adjacent to Auckland Point, Round Hill, and Radar Hill. The north facing slopes of the Gladstone CBD are also included within this viewpoint. These areas are located approximately 12 km to the south east of the site.

**Table 14-11 Viewpoint 8 - Gladstone Urban Area Visual Context**

Typical local landscape character	 <p>View towards the proposed Reclamation Area from residential houses in Auckland Street</p>  <p>View to the north-west and north from residential properties in Goonoon Street near Radar Hill</p>
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Landform	Elevated ridge that extend through the northern part of the city. Mt Larcom and the elevated ridges of Curtis Island are dominant landscape features when viewed from elevated areas within this viewpoint.
Vegetation	Urban landscaping.
Land Use	Primarily residential land uses.
Visual Context	<p>Vegetation and other buildings constrain the views from most locations within this viewpoint. The setting means that the foreground views are composed predominately of urban development.</p> <p>Views from this location are experienced by:</p> <ul style="list-style-type: none"> <li>▶ Residents with prolonged viewing opportunities to the north. The Gladstone Marina, the RG Tanna Coast Terminal and the Gladstone Power Station dominate the middleground views from this viewpoint. Mt Larcom, Mt Miller, Mt Stowe and the surrounding ranges provide the background views to the west while Curtis Island frames the view to the east; and</li> <li>▶ Road users passing through the residential area.</li> </ul>

## 14.2 Potential Impacts and Mitigation Measures

### 14.2.1 Introduction

The potential visual impacts are considered in the context of the sensitivity of the surrounding visual environment and the potential for viewing of the areas that have had changes to their visual outlook due to project activities. The assessment of potential visual impacts of this Project focuses on the visibility of both the construction and operation phases of the development.

### 14.2.2 Potential Impacts

#### **Construction Stage**

The reclamation works will comprise the construction of the bund walls, the dredging operations, and the infilling of the Reclamation Area with the dredge material. The visual elements of the project that will be undertaken during the construction stage include:

- ▶ Construction of the bund walls, resulting in the creation of new linear elements in the landscape;
- ▶ Creation of the new land area through the reclamation process. This incorporates the gradual formation of the 50-70 m high mound located approximately 800 m from the eastern bund wall;
- ▶ Operation of the dredgers and the associated activities associated with the dredging operations;
- ▶ Potential dredge plumes from some of the dredging and pumping operations; and
- ▶ Truck movements on the road from the quarry to the bund construction site.

During the construction stage of the Project no night operations are proposed for the reclamation site with the only night operations occurring being the dredgers and the associated activities associated with the dredging operations.



**Operation Stage**

At the completion of construction operations, the site will be available for industrial and port related development. Development that may occur on this site following the completion of the reclamation work is not part of this assessment and will be subject to the approvals relevant to individual proposals for development of the reclaimed land at a later date.

**14.2.3 Visual Impact Assessment**

The landscape and visual impacts of the Project on the viewpoints have been assessed for both the construction and operational phases of the Project. These impacts are addressed in Table 14-12 - Table 14-19.

**Table 14-12 Viewpoint 1 – Port Curtis – Western Basin**

<p>Visible Project Elements</p>	<ul style="list-style-type: none"> <li>▶ Bund wall construction;</li> <li>▶ Dredging operations including any associated sediment disturbance;</li> <li>▶ Reclamation area including formation of a mound;</li> <li>▶ Removal of established mangroves along the foreshore in the vicinity of the reclamation area.</li> <li>▶ Lighting associated with night dredging operations.</li> </ul>
<p>Visualisations Port Curtis – Western Basin</p>	

Existing visual outlook



Visual outlook immediately following the completion of reclamation works (including reclamation mound)



Visual outlook following the establishment of rehabilitation planting

**Landscape Impact Construction and Operation**

The Reclamation Area will be a prominent visual feature when viewed from this part of Port Curtis. The proximity of the viewpoint to the site along with the addition of the new linear element of the bund wall, the extension of the land area through the reclamation and the creation of the mound will all impact on the landscape amenity from this viewpoint and result in an increasingly industrialisation of the visual landscape.

The Project will result in the following changes to the landscape character from this viewpoint:

- ▶ Introduction of an additional linear element into the landscape, particularly when viewed in association with the existing Fisherman’s Landing Northern Expansion and port facility. This will continue to reduce the naturalness of the current landscape in this location and create an area having an engineered appearance;
- ▶ Creation of a new constructed landscape feature in the mound that will be formed on the Reclamation Area. This will be situated in an area where the background view, from water level, is currently largely natural, thereby adding to the landscape impact; and



- ▶ The loss of some mangroves and other intertidal vegetation during the construction operations;

It is assessed that the Project will have a large adverse landscape impact from this viewpoint.

Visual Impact  
Construction and  
Operation

The visual environment from this viewpoint will be impacted on both during construction and operation stages of the Project.

The view from water level in the vicinity of the site will be substantially modified with the introduction of the new landform. Views to the mainland that are currently available from this viewpoint will be partly lost over time, firstly with the bund wall construction, and then with the construction of the mound on the Reclamation Area. Some of the background views will be lost due to the elevation of the new features above the water level. The extent of the change to the view and the associated visual impact will depend on the viewing location and proximity to the bund wall. The impact will increase with proximity to the bund wall.

The impact on the visual amenity will occur over an extended timeframe with the reclamation mound likely to only be required to be constructed at a timeframe greater than 3 years. This will be dependant on the requirements for dredging and the rate at which this will occur.

The future planting of the reclamation mound will reduce the long term visual impact due to the softening of the view, but the future construction of the associated wharf facilities will again introduce industrial type structures and facilities into the visual landscape. These elements are however, not part of this Project.

Visual impacts during construction and operation include:

- ▶ Gradual loss of naturalness of the landscape in this area with the dredging and reclamation activities;
- ▶ Lighting associated with night dredging activities;
- ▶ Increase in the activity occurring in this location with the operation of machinery and the construction work site operations; and
- ▶ Introduction of a new linear element, in the Reclamation Area, that provides a new edge to Port Curtis.

The change in view will be experienced by:

- ▶ Water based recreation users, including people fishing and using recreational watercraft; and
- ▶ Commercial based water users.

It is assessed that this viewpoint has a high visual sensitivity.

Significance of  
Impact

Major Significance



**Table 14-13 Viewpoint 2 – Port Curtis - Targinie Channel**

Visible Project Elements	<ul style="list-style-type: none"> <li>▶ Distant views of the bund wall and reclaimed land area; and</li> <li>▶ Dredging operations including any associated sediment disturbance;</li> <li>▶ Lighting associated with night dredging operations.</li> </ul>
Landscape Impact Construction and Operation	<p>During construction and operational phases, the Project will have a limited impact on the visual landscape from this viewpoint due to the distance to the Reclamation Area and the location of the existing Fisherman’s Landing facilities dominating the middleground views to the north and north-west.</p> <p>The reclamation mound will be visible from this viewpoint due to its elevation and the lack of development of such a height between the viewing location and the site. These works will create a new feature in the landscape; however the creation of the mound will occur over an extended period of time and will therefore gradually become a permanent feature of the landscape of the area. It is also expected that the landscape impact will diminish over time as rehabilitation and stabilisation planting is undertaken.</p> <p>It is assessed that the Project will have a small adverse landscape impact from this viewpoint.</p>
Visual Impact Construction and Operation	<p>The visual impact of the Project from this viewing location will largely result from the dredging operations and the mounding undertaken on the Reclamation Area. The core dredging operation is a use that while not permanent, will be undertaken over an extended period of time and therefore, the impact on the visual receptors in this location requires consideration. Dredging operation will also occur at night providing for additional lighting within the channel. This impact of this lighting however is considered to be minimal due to the existing lighting associated with industrial activities and shipping movements in the channel.</p> <p>The mounding of the dredge material in the Reclamation Area will be visible from this location and will become a permanent feature of the landscape when viewed from this location; however, the foreground and middleground views of existing industrial and port activity will assist in minimising the visual impact from this location.</p> <p>Apart from the dredging equipment and potential for some dredge plumes to occur at stages in the dredging process, it is assessed that this viewpoint has low visual sensitivity. This assessment is due largely to the nature of the use, the distance of the viewing location from the site, and middleground views of existing port and industrial facilities and the nature of the receptors at this viewpoint.</p>
Significance of Impact	Not Significant.



**Table 14-14 Viewpoint 3 – Port Curtis - Clinton Bypass Channel**

Visible Project Elements	<ul style="list-style-type: none"> <li>▶ Dredging operations, including any associated sediment disturbance;</li> <li>▶ Lighting associated with night dredging operations.</li> </ul>
Landscape Impact Construction and Operation	<p>This viewpoint is located approximately 10 km from the Reclamation Area in an area that is dominated by extensive wharf and port facilities. During construction and operational phases, the Project will have a limited impact on the visual landscape from this viewpoint, although dredging operations will be occurring in this location.</p> <p>It is assessed that the Project will have a negligible adverse landscape impact from this viewpoint.</p>
Visual Impact Construction and Operation	<p>The core dredging operation is a use that while not permanent, will be undertaken over an extended period of time and therefore, the impact on the visual receptors in this location requires consideration. Apart from the dredging equipment and potential for some dredge plumes to occur at stages in the dredging process it is assessed that there will be negligible visual impacts at this viewpoint. This assessment is due largely to the nature of the use, the existing visual environment and the nature of the receptors at this viewpoint.</p> <p>Dredging operation will also occur at night providing for additional lighting within the channel. This impact of this lighting however is considered to be minimal due to the existing lighting associated with industrial activities and shipping movements in the channel.</p> <p>It is assessed that this viewpoint has negligible visual sensitivity.</p>
Significance of Impact	Not Significant



**Table 14-15 Viewpoint 4 – Friend Point**

- |                          |   |
|--------------------------|---|
| Visible Project Elements | <ul style="list-style-type: none"> <li>▶ Bund wall;</li> <li>▶ Dredging operations including any associated sediment disturbance;</li> <li>▶ Lighting associated with night dredging operations;</li> <li>▶ Reclamation area including the mound; and</li> <li>▶ Some loss of established mangroves along the foreshore.</li> </ul> |
|--------------------------|---|

Visualisations  
Friend Point



Existing visual outlook



Visual outlook immediately following the completion of reclamation works



Visual outlook following the establishment of rehabilitation planting

**Landscape Impact Construction and Operation**

The Reclamation Area will be a prominent new landscape feature when viewed from Friend Point. The proximity of the viewpoint to the site along with the addition of the new linear element of the bund wall, the extension of the land area through the Reclamation and the creation of the mound will all impact on the landscape amenity and result in an increasingly industrial visual landscape. Industrial land uses may locate on the Reclamation Area over time.

The Project will result in the following changes to the landscape character from this viewpoint:

- ▶ Introduction of an additional linear element into the landscape, particularly when viewed in association with the existing Fisherman’s Landing Northern Expansion and port facility. This will continue to reduce the naturalness of the current landscape in this location and create an area having an engineered appearance;
- ▶ Creation of a new constructed landscape feature in the mound that will be formed on the Reclamation Area. This will be situated in an area where the background view is largely natural, adding to the landscape impact; and
- ▶ The loss of some mangroves and other intertidal vegetation during the construction operations.

It is assessed that the Project will have a large adverse landscape impact from this viewpoint.

**Visual Impact Construction and Operation**

The visual environment from this viewpoint will be impacted on both during construction and operation stages.

The view from this viewpoint will be substantially modified with the introduction of the new landform. Some of the views that are currently available will be lost over time, firstly with the bund wall construction and then with the construction of the mound within the Reclamation Area. Some of the background views will be lost due to the elevation of the new features.

The future planting of the reclamation mound will reduce the long term visual impact due to the softening of the view, but the future construction of the associated wharf facilities and the LNG developments proposed for Curtis Island will introduce further industrial type structures and facilities into the visual landscape. While these elements are not part of this Project and will be assessed at a later stage, their possible development will all contribute to the future visual environment in this location.



Visual impacts during construction and operation of the Project include:

- ▶ Gradual loss of naturalness of the landscape in this area with the dredging and reclamation activities; and
- ▶ Increase in the activity occurring in this location with the operation of machinery and the construction work site operations;
- ▶ Lighting associated with night dredging activities. The impact of the lighting from this viewpoint will only occur during the construction phase of the project and during the period of dredging in the northern section of Port Curtis. This impact of this lighting is therefore considered to be minimal from this viewpoint;
- ▶ Introduction of a new linear element in the Reclamation Area that provides a new edge to Port Curtis.

The change in view will be experienced by visitors to Friend Point and water based recreation users, including people fishing and using recreational watercraft accessing the water at this location.

It is assessed that this viewpoint has a high visual sensitivity.

Significance of Impact	Major Significance
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**Table 14-16 Viewpoint 5 – Mt Larcom**

Visible Project Elements	<ul style="list-style-type: none"> <li>▶ Extension of the existing linear landscape feature of the Fisherman’s Landing port, resulting in an increasing visual dominance of the middle ground views;</li> <li>▶ Dredging operations, including any associated sediment disturbance; and</li> <li>▶ Reclamation area, including the mound.</li> </ul>
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Visualisations  
Mt Larcom



Existing visual outlook



Visual outlook immediately following the completion of reclamation works



Visual outlook following the establishment of rehabilitation planting

**Landscape Impact  
Construction and  
Operation**

The Reclamation Area will be a prominent landscape feature when viewed from Mt Larcom, resulting from the following changes to the landscape character from this viewpoint:

- ▶ Introduction of an additional linear element into the landscape, particularly when viewed in association with the existing port facility;
- ▶ Creation of additional land area within Port Curtis that will narrow the visual appearance of the water area between the mainland and Curtis Island;
- ▶ Creation of a new landscape feature with the Reclamation Area mounding; and
- ▶ Decrease in the naturalness of the visual landscape to the east when viewed from this location.

Mt Larcom provides the only location from which all of the activities associated with the Project will be visible with the changes to the landscape being permanent and visually prominent. However, the distance to the Reclamation Area and the extensive views available from this viewpoint does lessen the overall landscape impact.

It is assessed that the Project will have a moderate adverse landscape impact from this viewpoint.



Visual Impact Construction and Operation	<p>This viewpoint has a high level of visual impact due to the extensive views offered from this location, but the sensitivity of this impact is reduced due to the lack of accessibility and the distance from the viewing location to the reclamation site. Access to this location is achieved via a difficult walking track with steep sections limiting the availability of this view. The use of the track is also limited with few people undertaking this walk, therefore limiting the opportunity for viewing of the Project site. The viewing duration from this location is also short with no facilities provided at the top, again reducing the overall visual sensitivity.</p> <p>The difficult access, which limits the number of visitors, also reduces the visual sensitivity and visual impact of the project from this location.</p> <p>It is assessed that this viewpoint has a medium visual sensitivity.</p>
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Significance of Impact	Moderate Significance
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**Table 14-17 Viewpoint 6 – Auckland Point**

Visible Project Elements	<ul style="list-style-type: none"> <li>▶ Distant partly screened views of the Reclamation Area including the mounding that will be undertaken; and</li> <li>▶ Dredging operations including any associated sediment disturbance; and</li> <li>▶ Lighting associated with night dredging operations.</li> </ul>
Landscape Impact Construction and Operation	<p>The majority of the works undertaken as part of this Project will not be visible from this location, although the eventual height of the mounding to be formed on the Reclamation Area will result in a new landscape feature that will be partly visible from this viewpoint.</p> <p>The distance from this viewing location to the site (approximately 10 km) lessens the impact on the visual landscape, as does the foreground and middleground industrial and port related development including the Gladstone Marina and the RG Tanna Coal Terminal.</p> <p>It is assessed that the Project will have a negligible adverse landscape impact from this viewpoint.</p>
Visual Impact Construction and Operation	<p>Visitors to the lookout and park area experience the view towards the site when looking in a north and north-west direction. The views from this location are largely short term in nature due to the characteristics of the site.</p> <p>The screening provided by the existing foreground and middleground development minimises the visual impact and sensitivity of the views of the Reclamation Area from this location. There may be some loss of naturalness of the view but given the nature of the existing development, the Project is not considered to significantly impact on the visual impact.</p> <p>It is assessed that this viewpoint has a low visual sensitivity.</p>
Significance of Impact	Not Significant



**Table 14-18 Viewpoint 7 – Round Hill**

Visible Project Elements

- ▶ Distant partly screened views of the Reclamation Area including the mounding; and
- ▶ Distant views of dredges undertaking the dredging operations and any associated sediment disturbance and associated lighting.

Visualisations  
Round Hill



Existing visual outlook



Visual outlook immediately following the completion of reclamation works



Visual outlook following the establishment of rehabilitation planting

Landscape Impact  
Construction and  
Operation

The Reclamation Area will be visible from parts of the Round Hill Lookout with views to the north and north-west. The flat topography in the vicinity of the Reclamation Area adds to the visual prominence, as the mounding in the Reclamation Area will result in a change in landform.

This change will be a permanent feature of the visual landscape; however the distance from the site does diminish the overall landscape impact of the Project.

The Project will result in the following changes to the landscape character from this viewpoint:

- ▶ Introduction of an additional linear element and extension of the coastline into the landscape, particularly when viewed in association with the existing Fisherman's Landing Northern Expansion and port facility; and
- ▶ Creation of a new constructed landscape feature in the mound that will be formed on the Reclamation Area.

Despite being visible from this viewpoint, the landscape impact of the Project is reduced when viewed from Round Hill Lookout as:

- ▶ The Reclamation Area is located approximately 12 km to the north of this viewpoint, therefore being part of the background view; and
- ▶ The view to the north from this viewpoint is dominated by the foreground and middleground views of the existing industrial development in this area, including the Gladstone Power Station and the RG Tanna Coal Terminal.

It is assessed that the Project will have a moderate adverse landscape impact from this viewpoint.



Visual Impact  
Construction and  
Operation

The view from this location is experienced by visitors to the lookout and residents using this area for recreation purposes with this viewing opportunity therefore being of short term duration.

The visual prominence of the existing foreground and middleground development minimises the visual impact and sensitivity of the views of the Reclamation Area from this location. The separation distance also contributes to a reduction in the visual sensitivity of this viewpoint. There will also be some loss of naturalness of the view but given the nature of the existing development, this is not considered to significantly impact on the visual impact.

Dredging operation will be undertaken at night providing for additional lighting at the dredging locations. This impact of this lighting however is considered to be minimal from this viewpoint due to the limit of the available views, the existing foreground and middleground lighting environment and the distance to the dredging activities.

It is assessed that this viewpoint has a low visual sensitivity.

Significance of  
Impact

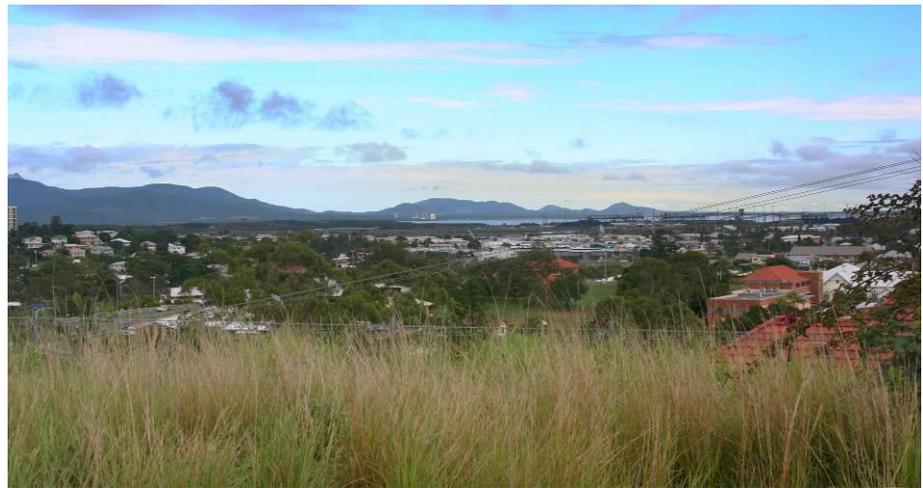
Minor Significance

**Table 14-19 Viewpoint 8 – Gladstone Urban Area**

Project Elements

- ▶ Distant screened views of the Reclamation Area including the mounding that will be undertaken; and
- ▶ Distant views of dredgers undertaking the dredging operations and associated lighting.

Visualisations



Existing visual outlook towards the Project site when viewed from the southern end of Goondoon Street



Visual outlook immediately following the completion of reclamation works



Visual outlook following the establishment of rehabilitation planting

**Landscape Impact  
Construction and  
Operation**

The Reclamation Area and associated dredging operations will be visible from some residences and businesses located within this viewpoint. In particular, the formation of the mound on the reclamation will result in a new landscape feature which will increase visual prominence. This change will be a permanent feature of the visual landscape; however it will be formed over a long period of time and the distance from the site diminishes the overall landscape impact of the Project.

The Project will result in the following changes to the landscape character from this viewpoint:

- ▶ Introduction of an additional linear element and extension of the coastline into the landscape, particularly when viewed in association with the existing Fisherman’s Landing Northern Expansion and port facility; and
- ▶ Creation of a new constructed landscape feature in the mound that will be formed on the Reclamation Area.



Landscape Impact Construction and Operation	<p>Despite being visible from some locations within this viewpoint the landscape impact of the Project is reduced due to:</p> <ul style="list-style-type: none"> <li>▶ The Reclamation Area is located approximately 12 km to the north of this viewpoint, therefore being part of the background view; and</li> <li>▶ The view to the north from this viewpoint is dominated by the foreground and middleground views of the existing industrial development in this area, including the Gladstone Power Station and the RG Tanna Coal Terminal.</li> </ul> <p>It is assessed that the project will have a moderate adverse landscape impact from this viewpoint.</p>
Visual Impact Construction and Operation	<p>Residents with screened or unscreened views are sensitive receptors, having long viewing periods and therefore, a higher sensitivity to the visual environment. There will also be an incremental increase in the degree of industrialisation of the visual environment from this viewpoint. However, due to the visual dominance of the existing development located between the viewpoint and the site and the separation distance, the visual sensitivity of this viewpoint is reduced.</p> <p>Dredging operation will be undertaken at night providing for additional lighting at the dredging locations. This impact of this lighting however is considered to be minimal from this viewpoint due to the limit of the available views, the existing foreground and middleground lighting environment and the distance to the dredging activities.</p> <p>It is assessed that this viewpoint has a low visual sensitivity.</p>
Significance of Impact	Minor Significance

#### 14.2.4 Cumulative and Residual Impacts

##### **Cumulative Impacts**

The Reclamation Area is located within Port Curtis, which has a mix of large industrial development, and vegetated backdrops provided by Curtis Island and Mt Larcom. Being located at the northern end of Port Curtis, the Reclamation Area has some visual separation from the current core industrial and port areas, although some development has occurred adjacent to the site at Fisherman's Landing.

In addition to current industrial development, LNG facilities are proposed for the south-west part of Curtis Island, the Wiggins Island Coal Terminal has been approved, and further large industrial development is expected to be undertaken within the Gladstone State Development Area. These developments will further reinforce the industrial nature of the visual landscape to the north of the city. With each new development comes a change to the landscape and visual character of the area with the cumulative impact being an increasing industrialisation of the visual environment.

The Western Basin Dredging and Disposal Project will extend the area of industrial visual influence further north and visually encroach into an area which currently has a more natural feel. The result will be a permanent change to the visual landscape and character of this location.



## **Residual Impacts**

### **Construction**

It is not anticipated that there will be any residual landscape or visual impacts arising from the construction phase of the Project.

### **Operation**

Some impacts resulting from the Project are unavoidable and cannot be mitigated due to the permanent nature of the resulting landscape. Foremost amongst residual impacts is the creation of a new land area within Port Curtis and the creation of a large mound in the Reclamation Area, which will be visible from many locations including areas within Gladstone up to 12 km from the site. These features will be the primary impact on the landscape and visual amenity of the area.

The Project will alter the landscape and the visual experience of some visual receptors, particularly from Viewpoints 1, 4 and 5 (Point Curtis – Western Basin, Friend Point, and Mt Larcom). This change to the visual environment is permanent.

Site wide, in terms of the assessment criteria, this equates to a Moderate Adverse Residual Landscape Impact with a medium visual sensitivity due to the extensive use of this area by water based activities. Therefore, the assessment of significance of residual impacts is considered to be Moderate.

#### **14.2.5 Mitigation Measures**

The aim of this section is to identify mitigation measures that will reduce and/or manage adverse impacts of construction and operation on landscape character and visual amenity.

##### **Construction Phase**

The Project aims to achieve construction without causing undue visual disruption to receptors. The following mitigation measures are recommended for this Project:

- ▶ Avoid loss or damage to landscape features, including minimisation of clearance of mangroves. Where possible, protect trees prior to construction and/or trim vegetation to avoid total removal. This includes vegetation that makes a significant and positive contribution to landscape character and/or has significant value in terms of biodiversity;
- ▶ Temporary hoardings, barriers, traffic management and signage to be removed when no longer required;
- ▶ Materials and machinery to be stored tidily during the works;
- ▶ Roads providing access to the site and work areas to be maintained free of dust and mud as far as reasonably practicable; and
- ▶ Measures implemented to minimise sedimentation created by dredging activity.

##### **Operation Phase**

At the completion of the dredging operations, stabilisation of the reclamation mound will be required which will also assist in achieving an improved visual outcome. It is recommended that GPC undertake progressive planting of native vegetation, including trees, shrubs and groundcovers on the mound created from dredging and reclamation activities.



## 14.2.6 Conclusion and Summary of Impacts

The landscape and visual impacts of the Project are assessed as being of moderate adverse significance. Due to the nature of the Project, there will be a permanent impact on the visual landscape and amenity of the area, particularly when viewed from the water in the vicinity of the Reclamation Area. The landscape and visual impacts of the Project will occur both during the construction and operation phases of the Project.

A summary of the outcomes of this assessment are detailed in Table 14-20.

**Table 14-20 Summary of Impacts**

Viewpoint	Landscape Impact	Visual Sensitivity	Significance of Impact
Viewpoint 1 – Port Curtis – Western Basin	●	●	*
Viewpoint 2 - Port Curtis – Clinton Bypass Channel	○	○	○
Viewpoint 3 – Port Curtis – Targinie Channel	◐	◐	○
Viewpoint 4 – Friend Point	●	●	*
Viewpoint 5 – Mt Larcom	◐	◐	◐
Viewpoint 6 – Auckland Point Lookout	○	◐	○
Viewpoint 7 – Round Hill	◐	◐	◐
Viewpoint 8 - Gladstone Urban Area	◐	◐	◐

- Negligible Landscape Impact / Negligible Visual Sensitivity / Not Significant Impact
- ◐ Small landscape Impact / Low Visual Sensitivity / Minor Significance of Impact
- ◑ Moderate Landscape Impact / Medium Visual Sensitivity / Moderate Significance of Impact
- Large Landscape Impact / High Visual Sensitivity / High Significance of Impact
- \* Major Significance of Impact