



C8

**VOLUME C:** MIDDLE BANKS, MORETON BAY  
Landscape and Visual

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## KEY FINDINGS SUMMARY

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- The visibility of the dredging activity is limited to areas along the western coast of Moreton Island including the Tangalooma Resort and pier; beaches and headlands to the north and south of the resort; the communities at Cowan Cowan, as well as from boats within Moreton Bay. The area from which this activity is likely to be seen, while not including large numbers of residential areas, is sensitive due to the recreational uses that occur and the scenic environment in which it is set.
- All visual impact associated with these dredging activities are construction impacts, as this activity is a portion of the construction process. These impacts will occur over a period of approximately 12 - 18 months, as the first stages of the construction activity occur.
- Views from the Island and Bay are considered to experience negligible impact as the distance at which these views are appreciated and the extent of dredging activity which is visible means that there is a minimal modification of these views. Any dredging activity at night will be largely indistinguishable from other existing shipping activity on the Bay.
- There is little change that is likely to occur within this part of the Bay and upon Moreton Island during this phase of construction activity that will have a cumulative effect on these construction impacts.

Figure 8.1: Location of Study Site.



## 8.1 Introduction

A major part of the construction of the NPR is the dredging of Middle Banks to supply fill for the site. Middle Banks is located off the western shores of Moreton Island, in Moreton Bay. (Refer **Figure 8.1** Location of the Study Site).

The area from which this activity is likely to be seen, while not including large numbers of residential areas, is sensitive due to the recreational uses that occur and the scenic environment in which it is set. Moreton Bay is designated as a Marine Park and functions as a regional recreation resource with various types of boat users on the Bay and the beaches of Moreton Island are also used as an extensive recreation resource.

This chapter has been prepared as part of the environmental impact assessment of the proposal. It evaluates the visual impacts of the proposal on local residents, visitors, and workers through the use of representative publicly accessible viewpoints.

The report includes the following:

- A description of the proposed development in terms of its visual character.
- A description of the methods used to undertake the landscape visual assessment.
- A description of the limitations and assumptions of this method.
- An evaluation of the baseline condition, i.e. the existing visual character of the area.
- A description of the consultation, policies and guidelines which have been used to inform this assessment.
- An assessment of the visual impact of the proposal focusing on an evaluation of representative views.
- An assessment of the cumulative and interactive effects of any identified impacts.
- A description of measures being incorporated into the site planning and landscape design to mitigate these visual impacts.

- An assessment of the residual effects, considering the implementation of these mitigation measures.
- An assessment summary matrix, which summarises the results of this assessment.

## 8.2 Proposed Development

The landscape and visual features of this project include a number of elements and processes that will change the landscape and visual character of the site and its surrounds. In the Middle Banks area the following elements will be the main visual features of the dredging site:

During construction (Duration - 2008 up to 2015):

- The dredging equipment moving along the main shipping channels to access Middle Banks.
- A dredge will be active over the areas of Middle Banks.
- A plume of turbid water will be created by the dredging activity (Refer **Figure 8.2**).<sup>1</sup>
- There will be safety lighting during night time dredging activity.

The dredging activity will be completed during the beginning phases of the construction program for the project and last for a duration of 12 - 18 months.

**Figure 8.2: Potential Location and Extent of Plume.**



<sup>1</sup> The plume shown in Figure 8.2 is a representation of the extent of the dredge plume in particular tidal conditions. For a full analysis of the extent and duration of the dredge plume that has been modelled under a variety of tidal conditions, refer to Chapter C4: Water Quality.

## 8.3 Methodology

### 8.3.1 Assessment Guidance

There is no guidance on the assessment of landscape and visual impact specifically for Australia. However, the industry typically refers to the guidance offered by the Landscape Institute in the United Kingdom. The following methodology conforms with the guidance offered by the Guidance for Landscape and Visual Impact Assessment (GLVIA).

### 8.3.2 Landscape and Visual Impact Assessment

The following steps were undertaken in the assessment of the visual impacts of the proposal.

#### Baseline Conditions

A series of site inspections were carried out between September and October of 2005 to evaluate the existing visual character of the area. This evaluation allowed the team to specifically identify locations that represent the visibility of the dredging site, and thus consider locations which are likely to be subject to visual impacts from the proposed activity. Photographs were taken from key viewpoints as being representative of views to the area. These views represent publicly accessible viewpoints from the range of locations and viewing situations possible.

The study area, overall, has then been considered in terms of the Institution of Lighting Engineers (ILE) environmental zones, identified for consideration of the lit condition of the landscape. These zones are:

- E1: **Intrinsically dark landscapes** – National Parks, Areas of Outstanding Natural Beauty, etc.
- E2: **Low district brightness areas** – Rural, small village, or relatively dark urban locations.
- E3: **Medium district brightness areas** – Small town centres or urban locations.
- E4: **High district brightness areas** – Town/city centres with high levels of nighttime activity.

Specific features of the lit landscape are then described in terms of:

- **Sky glow** – the brightening of the night sky above our towns, cities and countryside.
- **Glare** – the uncomfortable brightness of a light source when viewed against a dark background.
- **Light Trespass** – the spilling of light beyond the boundary of the property or area being lit.

#### Assessment of Visual Impact

A qualitative assessment of visual impact has been undertaken for this study. The visual impact of the proposal has been primarily evaluated on the basis of a combination of two main factors, visual modification and visual sensitivity. These factors are described below along with the way in which they are combined to identify a level of visual impact.

#### Visual Modification

Visual modification refers to the change to the landscape that would occur as a result of the development from a given viewpoint. This includes what has changed, and how it has changed. This will be described as the extent of change and will identify elements which are removed or added, any change in colour and texture, changes in movement patterns and the amount of movement. For the purposes of this assessment, the percentage of a view that is changed as a function of distance will be considered within modification.

The following terminology will be used to describe visual modification:

*Considerable reduction or improvement* – Substantial part of the view is altered.

*Noticeable reduction or improvement* – Alteration to the view is clearly visible.

*No perceived reduction or improvement* – Either the development is not visible, or if it is the change in the view is not clearly visible.

## Visual Sensitivity

Visual sensitivity refers to the nature and duration of views. The level of visual sensitivity is independent of how much of the development can be seen, as this is considered as a part of visual modification. Locations from which a view would potentially be seen for a longer duration, where there are higher numbers of potential viewers and where visual amenity is important to viewers can be regarded as having a higher visual sensitivity. Residential areas are of higher visual sensitivity, for example, than industrial areas. Other areas of higher sensitivity include roads where, despite a short duration of view there are large numbers of potential viewers, and parks where the duration of views is not particularly long but where a high degree of importance is placed on visual amenity.

The following terminology will be used to describe visual sensitivity:

*National visual sensitivity* – Heavily experienced view to a national icon, e.g. view to Sydney Opera House from Circular Quay, view to Parliament House down Anzac Parade.

*State level visual sensitivity* – Heavily experienced view to a feature or landscape that is iconic to the state, e.g. views of the Brisbane River and Story Bridge from key riverbank locations.

*Regional visual sensitivity* – Heavily experienced view to a feature or landscape that is iconic to a city or a non-metropolitan region, or heavily used vantage point from which an entire region can be viewed. e.g. a view to Brisbane from Mt Coot-tha, view of Brisbane from approaching and departing aircraft.

*Local visual sensitivity* – High quality view experienced by concentrations of residents and/or local recreational users, and/or large numbers of road or rail users. e.g. views towards Moreton Bay from Hamilton Hill, views across Moreton Bay from Scarborough Pier.

*Less than local visual sensitivity* – Views of not particularly high quality experienced by residents, road/rail users, or from recreational areas where visual amenity is not a primary value.

## Visual Impact

Visual impact for each representative viewpoint is described qualitatively on the basis of an assessment of the above factors and against the significance criteria described in section 8.3.3.

The visual assessment based on the assessment of representative viewpoints is then summarised for the completed project. The overall visual impact is also considered in terms of the construction process; cumulative and interactive effects, mitigation measures, and residual effects. The combination of construction and completed project impacts are then assessed.

It should be noted that visual impact is dependent on the perception of viewers. The assessment is based on the assumption that the introduction of dredging elements into a view, will in most situations have a negative effect on visual amenity.



### 8.3.3 Landscape and Visual Assessment Significance Criteria

Although there are no recognised standards for determining the significance of visual impact, there is a need to assign a significance to this assessment

so that any impacts can be considered in relation to the other environmental, engineering, social and economic impacts identified in association with the proposed development. The following significance criteria have been developed specifically for this project to allow for this consistency to occur:

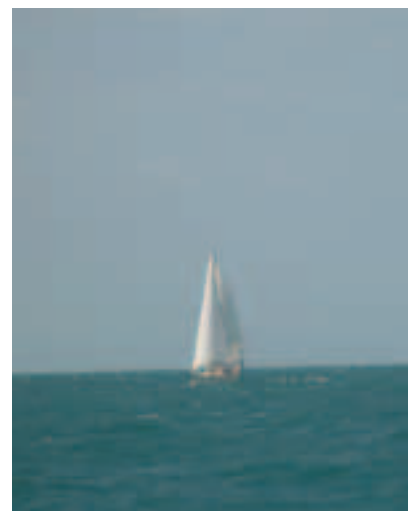
Significance Level	Description
Major Adverse	Any reduction in the amenity of a view of national visual sensitivity Considerable reduction in the amenity of a view of state level visual sensitivity
High Adverse	Noticeable reduction in the amenity of a view of state level sensitivity Considerable reduction in the amenity of a view of regional visual sensitivity
Moderate Adverse	Noticeable reduction in the amenity of a view of regional level visual sensitivity Considerable reduction in the amenity of a view of local visual sensitivity
Minor Adverse	Noticeable reduction in the amenity of a view of local level sensitivity - Considerable reduction in the amenity of a view of less than local visual sensitivity
Negligible	No perceived reduction or improvement in the amenity of a view (although development may be visible)
Minor Beneficial	Considerable improvement in the amenity of a less than local visual sensitivity Noticeable improvement in the amenity of a view of local visual sensitivity
Moderate Beneficial	Considerable improvement in the amenity of a view of local visual sensitivity Noticeable improvement in the amenity of a view of regional visual sensitivity
High Beneficial	Considerable improvement in the amenity of a view of regional visual sensitivity Noticeable improvement in the amenity of a view of state level visual sensitivity
Major Beneficial	Considerable improvement in the amenity of a view of state level visual sensitivity Any improvement in the amenity of a view of national visual sensitivity



**View to Moreton Island**



**Large Freight Ships in the Main Shipping Channel**



**Recreational boating activity in the Bay**



## 8.4 Limitations and Assumptions

It is assumed that alongside the new development and redevelopments occurring along the Australia TradeCoast there will be an increase in shipping activity within the Bay. However, this will have little impact upon this assessment as the construction activity will occur within the short term.

## 8.5 Baseline

### 8.5.1 Visual Character of the Site and Surrounding Area

The site is located approximately 30 km from the airport, north of Brisbane. The site lies within the waters of Moreton Bay, adjacent to Moreton Island. The Tangalooma Resort is located adjacent to the site at a distance of approximately 4 km. Middle Banks is generally located where two shipping channels intersect.

During night-time hours, it is considered that this area falls within the **Low district brightness area, ILE environmental zone E2, Rural, small village, or relatively dark urban locations**. There it is likely that there will be little general sky glow from the Tangalooma Resort influencing this area.

In selecting representative viewpoints of the site, it is clear that views to the site are likely to be from two key areas:

- From the adjacent Main Shipping Channel.
- From Moreton Island.

The following paragraphs describe the visual influence of the site from these key areas as they currently exist in 2005.

### 8.5.2 Visual Influence of the Site - Base 2005

From Moreton Island, views to the site are possible from the Tangalooma Resort, beaches and Pier. There will also be views possible from the beaches and headlands to the north and south of the resort, which are accessible by 4WD and walking trails. Further north, the communities at Cowan Cowan

may have views toward the resulting sand plume during particular tidal situations, however, this is likely to be at a distance from the shore, and be difficult to perceive.

There will also be views to the site from recreational watercraft using the surrounding areas of the Bay and commercial boating activity using the main shipping channel.

During night time hours, any dredging activity will be indistinguishable from other existing shipping activity on the Bay.

### 8.5.3 Selection of Representative Viewpoints

Site inspections were subsequently undertaken within the area of potential visual influence to identify the location and nature of major views to the site. Two points were then selected as representative of the range of views of the site that exist.

The representative viewpoints are locations where a reduction in visual amenity would have some visual impact either because of the duration of the view (such as views from residential areas), the importance of visual amenity to the experience of the location (such as recreational areas) or where there are large numbers of potential viewers (such as busy roads). The location of these representative viewpoints is shown in **Figure 8.5**.

The visual impact from each representative viewpoint is evaluated in section 8.8.1.

### 8.5.4 Environmental Design Objectives

Considering the visual influence of the site, generally and from the representative viewpoints, as well as the nature of the dredging activity, it is considered that there is little that can be undertaken in terms of environmental design to reduce the visual impacts of this activity.

## 8.6 Consultation

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While no formal consultation has been required with state agencies, visual aspects of the project have been raised as part of the Working Group process (refer Volume A).

## 8.7 Policies and Guidelines

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The Queensland Government's 'South East Queensland Regional Plan 2005-2026' includes a policy for the acknowledgement, protection and management of scenic amenity areas and features. The Moreton Bay Islands have been identified as an area of high scenic amenity with outstanding natural beauty.

## 8.8 Assessment

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### 8.8.1 Assessment of Representative Viewpoints

The following assessment of visual impact identifies the impacts from the two representative viewpoints selected for this area of the site. Cumulative and interactive impacts are discussed in more general terms after the evaluation of representative viewpoints. Mitigating measures and the residual environmental impacts (impacts occurring after the implementation of mitigating measures) are similarly discussed at the end of this section.

### 8.8.2 Construction Impacts

All visual impact associated with these dredging activities are construction impacts, as this activity is a portion of the construction process. These impacts will occur over a period of approximately 12 - 18 months, as the first stages of the construction activity occurs.

Views from the Bay and from the Island, as illustrated in the views assessed in section 8.8.1, are considered to experience *negligible* impact. The distance at which these views are appreciated and the extent of visible components of the dredging activity, means there is a minimal modification of these views.

## 8.9 Cumulative and Interactive Effects

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There is little change likely to occur within this part of the Bay and Moreton Island that will have a cumulative effect on these construction impacts.

There is, however, a possible interactive effect caused by the effect of visibility on the perception of noise impacts. This will be the case particularly for views from the resort and other nearby beach locations. In terms of the visual impact, it is considered that the cumulative effects do not significantly worsen the impact.

## 8.10 Mitigation Measures

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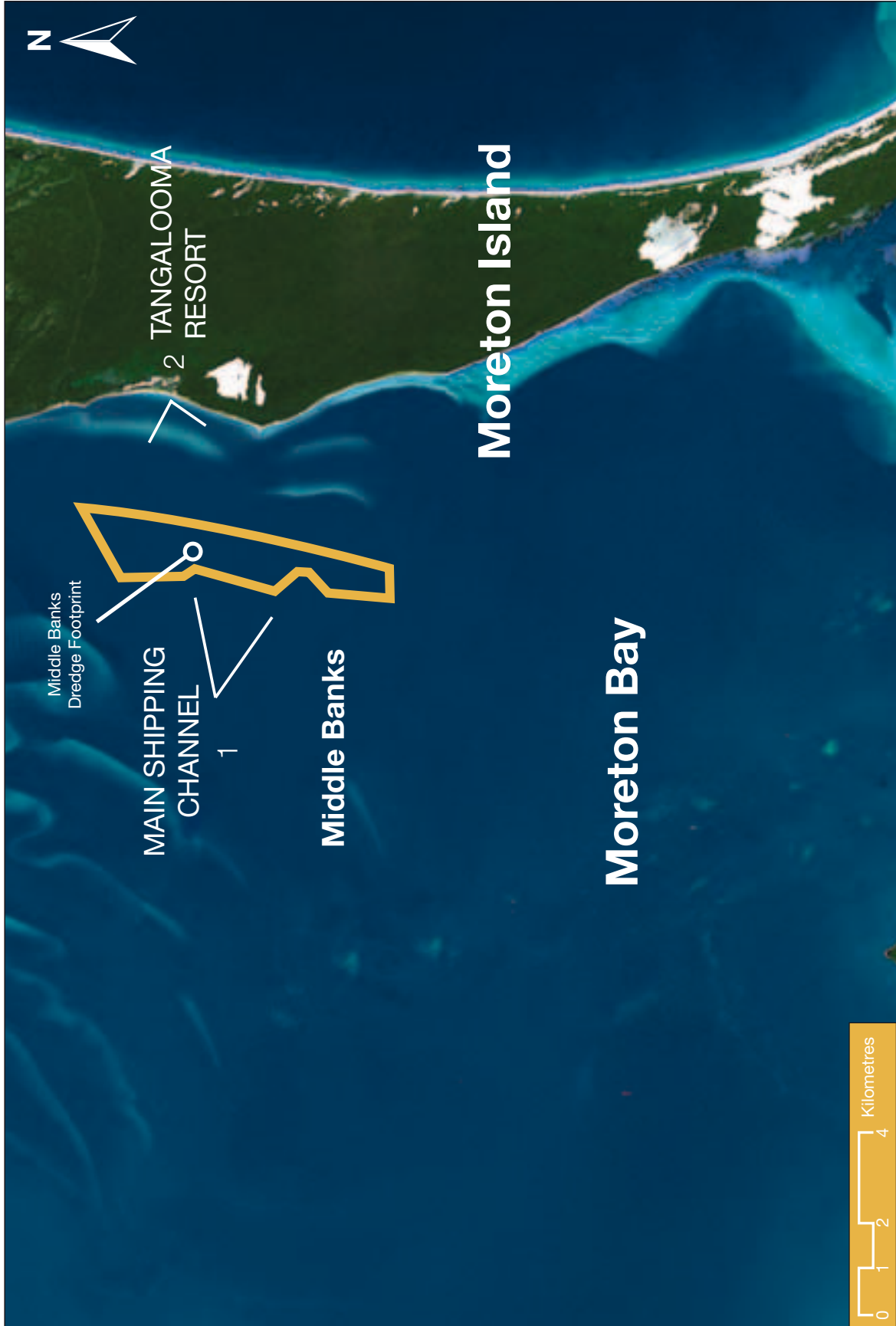
Given that both impacts are negligible, there would be no need for mitigation.

## 8.11 Residual Effects

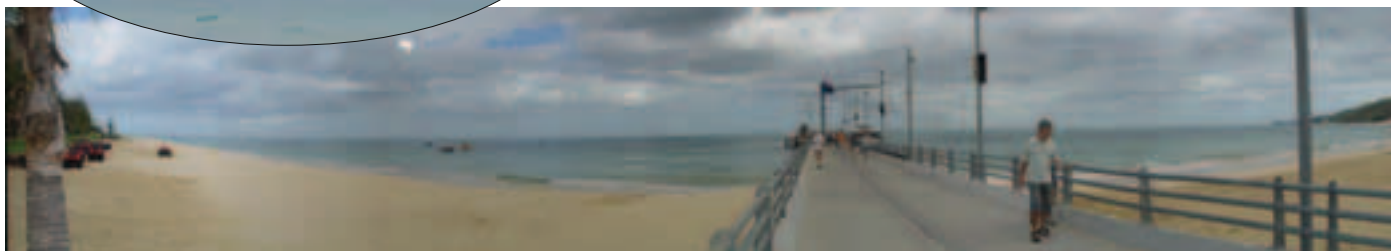
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Given that both impacts are negligible and there is no need for mitigation, the residual effects would remain negligible.

Figure 8.5a: Representative Viewpoint Locations.



View 1: Tangalooma Beach Resort, view west  
View 2: Main Shipping Channel, view south



**Existing view.**

<b>Location</b>	Tangalooma Beach Resort, view west
<b>Viewing Distance</b>	Approximately 2.5 km from the dredging site
<b>BASE 2005</b>	
Visual Condition	<p>There are broad views over Moreton Bay from this location. The dredging site constitutes a narrow portion of water visible in the background of this view. Recreational boats and large freight shipping vessels can be seen intermittently traveling across this view using the two shipping channels which parallel the Moreton Island shoreline. Recreational boating activity is also visible in this view.</p> <p>At night, the lights of Brisbane are likely to be visible in the far distance as a skyglow. Locally, there will be lighting associated with the resort and pier in the foreground.</p>
Visual Sensitivity	<p><b>Local</b> sensitivity level.</p> <p>The visual sensitivity at this location is derived from the importance of visual amenity to recreational boat users and visitors to the resort. At night the view has a lower level of sensitivity as visibility across the Bay is more limited and therefore has less scenic value.</p>
<b>DURING CONSTRUCTION</b>	
Visual Modification	<p>The dredge will be seen during the daytime, moving across the water toward the horizon, in the distance. The presence of the dredge would not contrast significantly with existing shipping activities during either day or night. The plume of turbid water, created by the dredging activity, will be seen as a sandy colouration of the water stretching across the view, in the distance. However, this plume will not be noticeable within this context.</p>
Visual Sensitivity	<p>The setting of the site will not be altered by the dredging activity, therefore the visual sensitivity of this view is likely to remain at the <b>local</b> level.</p>
<b>VISUAL IMPACT</b>	
	<p>The likely visual impact from the Tangalooma Resort is regarded as <i>negligible*</i> during night and daytime conditions due to there being no perceived reduction in the amenity of a view of local visual sensitivity.</p>

\* Refer to section 8.3.3 for an explanation of visual impact significance criteria



**Existing View.**

<b>Location</b>	Main Shipping Channel, view south
<b>Viewing Distance</b>	Approximately 1 km from the dredging site
<b>BASE 2005</b>	
Visual Condition	<p>There are broad views across Moreton Bay and along the coastline of Moreton Island, from this location within the Shipping Channel. The dredging site constitutes a portion of water visible in the middle ground of this view. Recreational boats and large freight shipping vessels can also be seen intermittently traveling across this view, using the two shipping channels which converge in this area. Recreational boating activity is also visible in this view.</p> <p>At night this view is likely to be relatively dark, with some skyglow visible in the context of this view, possibly created by the Tangalooma Resort located beyond this view to the north.</p>
Visual Sensitivity	<p><b>Local</b> sensitivity level.</p> <p>The visual sensitivity at this location is derived from the importance of visual amenity to recreational boat users and visitors arriving and departing the resort and other parts of the Island. At night the view has a lower level of sensitivity as visibility across the Bay is more limited and therefore has less scenic value.</p>
<b>DURING CONSTRUCTION</b>	
Visual Modification	<p>The dredge will be seen during the daytime, moving across the water in the middle ground of this view. This ship will be seen in the context of existing freight shipping traffic and recreational boat activity. The presence of the dredge would not contrast noticeably with existing shipping activities during either day or night. There will be some visibility of the plume of turbid water, created by the dredging activity, as a sandy colouration of the water stretching across the view, in the middle distance. However, this plume will not be noticeable within this context.</p>
Visual Sensitivity	<p>The setting of the site will not be altered by the dredging activity, therefore the visual sensitivity of this view is likely to remain at the <b>local</b> level.</p>
<b>VISUAL IMPACT</b>	<p>The likely visual impact from the Main Shipping Channel is regarded as <i>negligible</i>* during night and daytime conditions due to there being no perceived reduction in the amenity of a view of local visual sensitivity.</p>

\* Refer to section 8.3.3 for an explanation of visual impact significance criteria

## 8.12 Assessment Summary Matrix

The following table summarises the assessment of key representative viewpoints relating to the works being undertaken at Middle Banks.

EIS Area: Visual Assessment  Feature/ Description	Current Value (visual sensitivity) + Substitutable Y:N	Description of Impact			Additional Compensation (beyond standard practice)
		Impact	Mitigation inherent in design/standard practice amelioration	Significance Criteria	
View 1 Tangalooma Resort Beach	Local sensitivity level Not substitutable	During the daytime distant views of the dredge moving across the water on the horizon and the plume of turbid water will be achieved. However this new activity will not contrast significantly from existing shipping activities.	No visual mitigation works are proposed	Daytime construction: negligible adverse, T, I  Night time construction: negligible adverse, T, I	Nil
View 2 Main Shipping Channel	Local sensitivity level Not substitutable	During the daytime the dredge and some of the plume of turbid water will be viewed from the shipping channel in the middle ground. However this will be within the context of existing freight shipping traffic.	No visual mitigation works are proposed	Daytime construction: negligible adverse, T, I  Night time construction: negligible adverse, T, I	Nil

**Key:**

**Significance Criteria: Major, High, Moderate, Minor, Negligible beneficial positive; adverse negative**

**D – direct; I – indirect**

**C – cumulative; P – permanent; T – temporary**

**ST – short term; MT – medium term; LT long term**

## References

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*Hyder, 1999, Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, Study commissioned by the European Commission: Directorate-General XI (Environment, Nuclear Safety and Civil Protection), NE80328/D1/3.*

*Kingsley, L., 1997, A Guide to Environmental Assessments: Assessing Cumulative Effects, National Parks Canada, Natural Resources Branch, Quebec.*

*The Institution of Lighting Engineers, 2005, Guidance Notes for the Reduction of Obtrusive Light, [http://www.ile.org.uk/lighting\\_technical.htm](http://www.ile.org.uk/lighting_technical.htm).*

*Wilson S., 2003, Guidelines for Landscape and Visual Impact Assessment, Spoon Press (UK).*



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