

# Contents

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# 18 Social impact assessment

## 18.1 Chapter content

The Project social impact assessment was provided in Chapter 18 of the Project EIS.

This chapter provides additional information to address a submission received during the statutory public display period of the Project EIS. The key issue raised from the Project EIS submission process, relevant to the social impact assessment, is summarised Table 18.1.

**Table 18.1 Summary of submission issue received in relation to the Project EIS social impact assessment chapter**

Submitter ID number (refer Appendix A)	Summary of submission issue raised	Project EIS section (public notification version)	AEIS section containing information to address submission comments	Complete replacement section for Project EIS	Supplements the Project EIS information
12.04	Potential impacts and risk assessment rating tables in each draft EIS chapter should be amended to include effective mitigation measures to assist with their interpretation	Section 18.10	Section 18.2	✓	

## 18.2 Risk assessment

This section replaces the Project EIS Section 18.10 (risk assessment).

### 18.2.1 Methodology

To assess and appropriately manage the potential social impacts as a result of Project activities, a risk assessment process has been implemented (herein referred to as 'risk assessment'). The risk assessment methodology adopted is based on principles outlined in the:

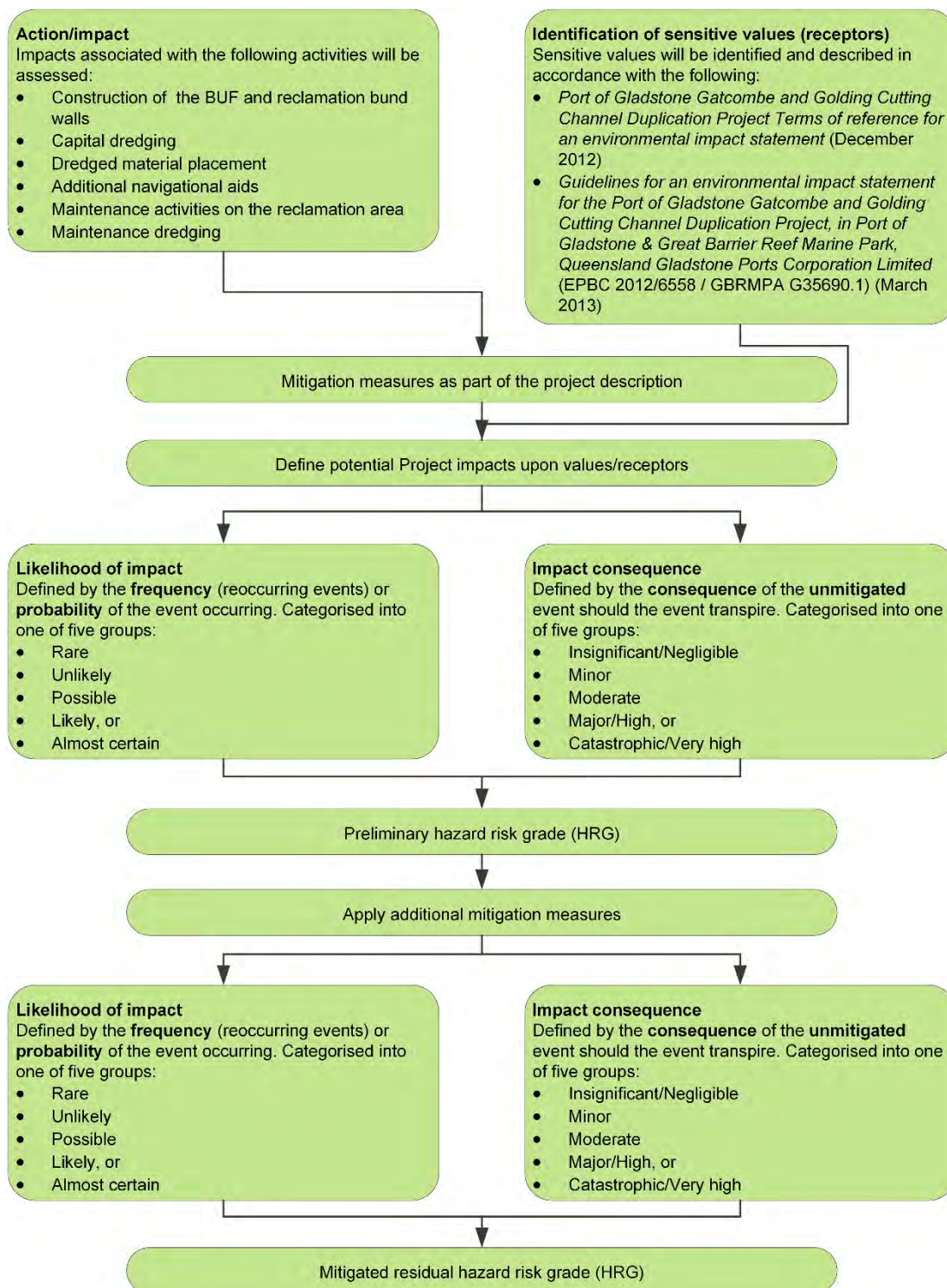
- AS/NZS ISO 31000:2009 Risk management – Principles and guidelines
- HB 203:2012 Handbook: Managing environment-related risk.

The risk assessment identifies and assesses the potential social impact risks to environmental values/receptors for both the establishment of the reclamation area and BUF, dredging activities, installing navigational aids and operational management of the reclamation area.

The purpose of this risk assessment is to identify potential impacts to environmental values/receptors, prioritise environmental management actions and mitigation measures, and to inform the Project decision making process.

The risk management framework incorporates the Australian/New Zealand Standard for Risk Management (AS/NZS 4360:2004) and contains quantitative scales to define the **likelihood** of the potential impact occurrence and the **consequence** of the potential impact should it occur.

An overview of the interaction between Project activities (drivers/stressors), sensitive values/receptors and the risk impact assessment process is provided in Figure 18.1.



**Figure 18.1 Risk assessment framework**

Criteria used to rank the **likelihood** and **consequence** of potential impacts are provided in Table 18.2 and Table 18.3, respectively.

**Table 18.2 Environmental (ecosystem), public perception and financial consequence category definitions (adapted from GBRMPA 2009)**

Description	Definition/quantification <sup>1</sup>		
	Environmental*	Public perception	Financial
Negligible (Insignificant)	No impact or, if impact is present, then not to an extent that would draw concern from a reasonable person  No impact on the overall condition of the ecosystem	No media attention	Financial losses up to \$500,000
Low (Minor)	Impact is present but not to the extent that it would impair the overall condition of the ecosystem, sensitive population or community in the long term	Individual complaints	Financial loss from \$500,001 to \$5 million
Moderate	Impact is present at either a local or wider level Recovery periods of 5 to 10 years likely	Negative regional media attention and region group campaign	Financial loss from \$6 million to \$50 million
High (Major)	Impact is significant at either a local or wider level or to a sensitive population or community Recovery periods of 11 to 20 years are likely	Negative national media attention and national campaign	Financial loss from \$51 million to \$100 million
Very high (Catastrophic)	Impact is clearly affecting the nature of the ecosystem over a wide area <b>or</b> impact is catastrophic and possibly irreversible over a small area or to a sensitive population or community  Recovery periods of greater than 21 years likely <b>or</b> condition of an affected part of the ecosystem irretrievably compromised	Negative and extensive national media attention and national campaigns	Financial loss in excess of \$100 million

**Table notes:**

1 Quantification of impacts should use the impact with the greatest magnitude in order to determine the consequence category

\* For Matters of National Environmental Significance (MNES) protected under the provisions of the EPBC Act the *Matters of National Environmental Significance – Significant Impact Guidelines 1.1 – Environmental Protection and Biodiversity Conservation Act 1999* (DoE 2013) are to be used to determine the consequence category

**Table 18.3 Likelihood category definitions (adapted from GBRMPA 2009)**

Description	Frequency	Probability
Rare	Expected to occur once or more over a timeframe greater than 101 years	0-5% chance of occurring
Unlikely	Expected to occur once or more in the period of 11 to 100 years	6-30% chance of occurring
Possible	Expected to occur once or more in the period of 1 to 10 years	31-70% chance of occurring
Likely	Expected to occur once or many times in a year (e.g. 1 to 250 days per year)	71-95% chance of occurring
Almost certain	Expected to occur more or less continuously throughout a year (e.g. more than 250 days per year)	96-100% chance of occurring

Once the likelihood and the consequence has been defined, determination of the HRG of the potential hazard will be determined through the use of a five by five matrix (refer Table 18.4).

**Table 18.4 Hazard risk assessment matrix (adapted from GBRMPA 2009)**

Likelihood	Consequence rating				
	Negligible (insignificant)	Low (minor)	Moderate	High (major)	Very high (catastrophic)
Rare	Low	Low	Medium	Medium	Medium
Unlikely	Low	Low	Medium	Medium	High
Possible	Low	Medium	High	High	Extreme
Likely	Medium	Medium	High	High	Extreme
Almost certain	Medium	Medium	High	Extreme	Extreme

**Table note:**

Hazard risk categories identified in this table are defined in Table 18.5.

**Table 18.5 Risk definitions and actions associated with hazard risk categories (adapted from GBRMPA 2009)**

Hazard risk category	Hazard Risk Grade (HRG) definition
Low	These risks should be recorded, monitored and controlled. Activities with unmitigated risks that are graded above this level should be avoided.
Medium	Mitigation actions to reduce the likelihood and consequences to be identified and appropriate actions (if possible) to be identified and implemented.
High	If uncontrolled, a risk event at this level may have a significant residual adverse impact on MNES, MSES, GBRWHA and/or social/cultural heritage values. Mitigating actions need to be very reliable and should be approved and monitored in an ongoing manner.
Extreme	Activities with unmitigated risks at this level should be avoided. Nature and scale of the significant residual adverse impact is wide spread across a number of MNES and GBRWHA values.

## 18.2.2 Summary of risk assessment

Table 18.6 is a summary assessment of impacts and opportunities, both initial and residual (post implementation of mitigation measures).

The Dredging EMP (refer AEIS Appendix F) and the Project EMP (refer AEIS Appendix G) provide a range of mitigation measures to reduce the potential social impacts of the Project. As part of the risk assessment, the management plans and associated mitigation measures below have been applied to determine the post mitigation HRG shown in Table 18.6.

- Dredging EMP (refer AEIS Appendix F)
  - General environmental management measures (refer Section 8)
  - Air quality management plan (refer Section 9.2)
  - Noise and vibration management plan (refer Section 9.8)
  - Water quality management plan (refer Section 9.10) and Environmental Management Monitoring Procedure (refer AEIS Appendix H)
- Project EMP (refer AEIS Appendix G)
  - Air quality management plan (refer Section 8.2)
  - Noise and vibration management plan (refer Section 8.8)
  - Water quality management plan (refer Section 8.10)
  - Social Impact Management Plan (refer preliminary draft in AEIS Appendix J).

Table 18.6 Summary assessment of social impacts and risk assessment ratings

Potential impact	Project phase					Preliminary HRG			Post mitigation HRG		
	Reclamation area and BUF establishment	Dredging	Navigational aids	Demobilisation	Maintenance	Likelihood	Consequence	HRG	Likelihood	Consequence	HRG
<b>Landscape character</b>											
<ul style="list-style-type: none"> <li>■ WBE reclamation area and BUF permanently changes landscape</li> <li>■ Introduction of land and BUF into marine environment and a change in the natural character of waterway</li> <li>■ Change to receptors' sense of place and visual amenity</li> </ul>	✓					Almost certain	Low	Medium	Almost certain	Low	Medium
<b>Visual amenity</b>											
<ul style="list-style-type: none"> <li>■ Construction-related activities causing reduced visual amenity</li> <li>■ Perceived and actual loss of views</li> </ul>	✓	✓	✓	✓	✓	Likely	Low	Medium	Possible	Low	Medium
<b>Noise and vibration</b>											
Construction noise and vibration for Facing Island and Boyne Island residents closest to the Project activities have the potential to impact on residents amenity and/or loss of sleep		✓	✓	✓		Possible	Moderate	High	Unlikely	Moderate	Medium
Construction and maintenance noise and vibration for other receptors have the potential to impact on residents amenity and/or loss of sleep	✓	✓	✓	✓	✓	Unlikely	Moderate	Medium	Unlikely	Moderate	Medium
<b>Commercial fishing</b>											
Potential for reduced water quality, and change in the location of fish stock		✓			✓	Likely	Moderate	High	Unlikely	Moderate	Medium

Potential impact	Project phase					Preliminary HRG			Post mitigation HRG		
	Reclamation area and BUJ establishment	Dredging	Navigational aids	Demobilisation	Maintenance	Likelihood	Consequence	HRG	Likelihood	Consequence	HRG
<b>Recreational fishing</b>											
Potential for reduced water quality, and change in location of fish stocks and reduced amenity for recreational fishers		✓			✓	Likely	Low	Medium	Unlikely	Low	Low
<b>Traditional Owners</b>											
Loss of waterway area, access to harbour and impacts on traditional fishing grounds	✓	✓			✓	Likely	Moderate	High	Unlikely	Moderate	Medium
<b>Tourism (construction)</b>											
Potential impact on the marine environment	✓	✓	✓	✓	✓	Likely	Moderate	High	Unlikely	Moderate	Medium
Change in visual amenity, recreational value/attractiveness of the Port	✓	✓				Likely	Low	Medium	Unlikely	Low	Low
<b>Maritime use</b>											
Construction vessels could increase maritime congestion and increase safety risks	✓	✓	✓	✓	✓	Possible	Low	Medium	Unlikely	Low	Low
<b>Road amenity and safety</b>											
Increased truck movements, decline in amenity, increased safety risks and congestion on Landing Road	✓					Likely	Low	Medium	Unlikely	Low	Low
<b>Workforce influx</b>											
<ul style="list-style-type: none"> <li>■ Impacts on housing and accommodation</li> <li>■ Impacts on community cohesion and social infrastructure</li> </ul>	✓	✓				Unlikely	Low	Low	Unlikely	Low	Low
<b>Stakeholder perceptions</b>											
Negative stakeholder perception of the Project	✓	✓			✓	Almost certain	High	Extreme	Possible	Moderate	High

Potential impact	Project phase					Preliminary HRG			Post mitigation HRG		
	Reclamation area and BUF establishment	Dredging	Navigational aids	Demobilisation	Maintenance	Likelihood	Consequence	HRG	Likelihood	Consequence	HRG
<b>Cumulative effects</b>											
Impacts from workforce influx in conjunction with other projects	✓	✓				Unlikely	Low	Low	Unlikely	Negligible	Low