

CHAPTER

# 04

INLAND  
RAIL 

## Assessment methodology

HELIDON TO CALVERT ENVIRONMENTAL IMPACT STATEMENT

**ARTC**

The Australian Government is delivering  
Inland Rail through the Australian  
Rail Track Corporation (ARTC), in  
partnership with the private sector.

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## 4. Assessment methodology

### 4.1 Introduction

This chapter outlines the assessment methodology used to assess potential impacts and opportunities as a result of the Helidon to Calvert (H2C) Project (the Project) in accordance with the final Terms of Reference (ToR). The methodology was designed to provide a structured and objective approach to identifying the Project's environmental, social and economic impacts; benefits and opportunities; and develop effective mitigation and management measures.

During the alignment selection process, multi-criteria analyses (MCAs) and comparative cost estimates were used to assess potential impacts associated with a range of alignment options for the Project. As a result of these studies it was determined that the Gowrie to Grandchester future passenger rail corridor was a suitable alignment for the H2C section of the Inland Rail Program (Inland Rail). The alignment selection methodology is discussed separately in Chapter 2: Project rationale.

Additionally, stakeholder and community engagement activities undertaken during development of the Environmental Impact Statement (EIS) are discussed in Chapter 5: Stakeholder engagement.

### 4.2 Approach

The first step in the impact assessment process was to prepare the Project description. Chapter 6: Project description includes information on the scale, type, duration and location of Project elements to be assessed.

Then, for each environmental value to be assessed (e.g. surface water, flora and fauna, air quality):

- ▶ The study area was defined. The study area is specific to the environmental value being assessed. The impact assessment area is defined based on the nature of the environmental value, and the scale, type and duration of Project elements that may impact on that value (refer Section 4.3).
- ▶ The impact assessment method was selected (refer Section 4.4).
- ▶ A desktop review of existing reports, studies and spatial datasets was undertaken to establish existing conditions and sensitive receptors relevant to the environmental value being assessed.
- ▶ If the desktop review revealed significant data gaps, fieldwork was undertaken to identify and/or ground truth existing environmental conditions and sensitive receptors. Further detail on desktop reviews and fieldwork is provided in Chapter 8 to Chapter 21.

- ▶ Potential impacts, benefits and opportunities were identified and assessed in accordance with the selected impact assessment method, using criteria set out in legislation, statutes, guidelines or policies. Where criteria do not exist, the assessment was based on industry standards and professional judgement. In each instance, the impact assessment was conducted as follows:
  - ▶ The impact assessment considered the construction and operation phases
  - ▶ The impact assessment considered short-term, long-term and cumulative impacts
  - ▶ Stakeholder engagement and public consultation has been undertaken as part of the impact assessment process and stakeholder feedback has been considered (and incorporated where appropriate and possible) into the design and impact assessment process
  - ▶ Mitigation measures inherent to the design (i.e. steps taken during the planning and reference design phases to avoid or minimise potential impacts) were factored into the initial impact assessment as part of the design
  - ▶ Mitigation and management measures were then proposed in addition to measures included at the design phase to further avoid or minimise impacts and enhance potential benefits (refer Section 4.5). These were factored into the assessment of residual impacts
  - ▶ The need for environmental offsets to compensate for adverse residual impacts was assessed.
- ▶ Mitigation and management measures were documented in Chapter 23: Draft Outline Environmental Management Plan (draft Outline EMP) and Chapter 8 to Chapter 21 (refer Section 4.5.1).

The EIS has taken a conservative and 'worst case' approach to identifying the potential impacts of the Project, including cumulative impacts. Where environmental impacts have been identified through the assessment process, efforts have been made (where practicable), to avoid or minimise those impacts through development of the design. Where attempts to avoid or minimise impacts through design have been of limited effect, further mitigation measures have been nominated for implementation during future phases of the Project. Those measures will be refined and where applicable, implemented as the Project transitions through the future phases of development.

The assessment has also identified opportunities to maximise economic and social benefits of the Project. The key economic and social benefits include: local employment, local industry participation and opportunities for complementary investment.

The approach to selecting impact assessment methods, identifying mitigation and management measures and compiling the draft Outline EMP is discussed in the following sections. The role of community and stakeholder consultation in the impact assessment process is discussed in Section 4.6 and within Chapter 5: Stakeholder engagement.

### 4.3 Terminology used

Table 4.1 defines the key terminology used across the EIS.

**TABLE 4.1: TERMINOLOGY USED ACROSS THE EIS**

Term	Definition
<b>EIS investigation corridor</b>	An approximate 2 km wide study area, 1 km either side of the proposed rail alignment. The EIS investigation corridor includes the disturbance footprint, which encompasses all areas where works are proposed, including both permanent and temporary works, and land within a 1 km radius either side of the proposed rail alignment.
<b>Disturbance footprint</b>	The disturbance footprint includes: <ul style="list-style-type: none"> <li>▶ Permanent disturbance footprint: The rail corridor includes the rail tracks and associated infrastructure as well as other permanent works associated with the Project (e.g. where changes to the road network are required)</li> <li>▶ Temporary disturbance footprint: The permanent disturbance footprint and any temporary storage and laydown areas to be used on a temporary basis during the construction phase.</li> </ul>
<b>Technical study areas</b>	Some technical assessments used a different study area to the EIS investigation corridor or disturbance footprint depending on the requirements of the environmental value being assessed.

### 4.4 Impact assessment methods

Three methods were used to assess potential impacts and opportunities:

- ▶ Compliance assessment (quantitative)
- ▶ Risk assessment (qualitative)
- ▶ Significance assessment (qualitative).

A general explanation of each assessment method and how it was applied is provided in Section 4.4.1 to Section 4.4.3, with further details specific to each technical discipline included in Chapter 8 to Chapter 21 of this EIS.

For each environmental value, the decision tree shown in Figure 4.1 was used to select an appropriate impact assessment method.

The assessment methods and the environmental values they apply to are listed and summarised in Table 4.2.

The assessment method was adapted to meet the needs of a particular environmental value. For example, land resources were assessed using both compliance assessment methods (using a qualitative rather than quantitative assessment of soil properties) and risk assessments methods (qualitative assessment of the likelihood and consequence of contamination or erosion). Terrestrial and aquatic ecology were assessed both quantitatively and qualitatively. Significance of potential ecological impacts was used to determine the sensitivity or vulnerability of the ecological receptor and the magnitude of the potential impacts.

This EIS also includes a cumulative impact assessment (refer Section 4.4.4). The cumulative impact assessment considers the combined effects of the Project, and relevant existing and proposed developments on environmental values. The cumulative impact assessment method is also described separately in Chapter 22: Cumulative impacts.

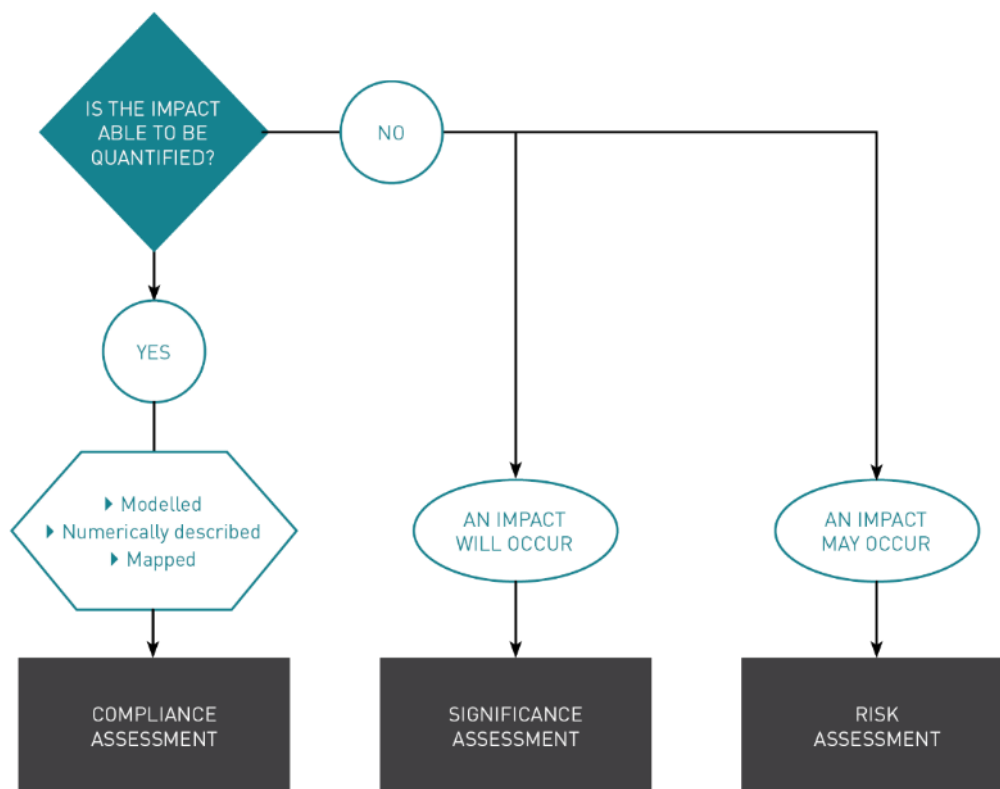


FIGURE 4.1: ASSESSMENT METHOD DECISION TREE

TABLE 4.2: ASSESSMENT METHODOLOGIES

Methodology	Type	Relevance	Environmental values
<b>Compliance assessment</b>	Quantitative	Used where compliance with a known guideline or standard (e.g. published limits or thresholds) can be quantitatively assessed	<ul style="list-style-type: none"> <li>▶ Flora and fauna</li> <li>▶ Land resources (soil properties)</li> <li>▶ Land use and tenure</li> <li>▶ Hydrology and flooding</li> <li>▶ Economics</li> <li>▶ Air quality (operation)</li> <li>▶ Noise and vibration</li> <li>▶ Traffic, transport and access</li> <li>▶ Hazard and risk</li> </ul>
<b>Risk assessment</b>	Qualitative	Used where there are no relevant quantified guidelines, an impact may occur, and the impact depends on how aspects or materials are managed	<ul style="list-style-type: none"> <li>▶ Air quality (construction)</li> <li>▶ Hazard and risk</li> <li>▶ Land resources (contaminated land/erosion)</li> <li>▶ Social</li> <li>▶ Waste and resource management</li> </ul>
<b>Significance assessment</b>	Qualitative	Used where there are no quantitative guidelines, an impact will occur, and it is the sensitivity or the vulnerability of the environmental value that is important	<ul style="list-style-type: none"> <li>▶ Flora and fauna</li> <li>▶ Groundwater</li> <li>▶ Surface water quality</li> <li>▶ Landscape and visual amenity</li> <li>▶ Cultural heritage</li> </ul>

#### 4.4.1 Compliance assessment

The compliance assessment method was applied to environmental values with quantifiable impacts (e.g. emissions and discharges from Project infrastructure and activities). Mapping, modelling and data (publicly available and field verified) were used to assess compliance with performance criteria adopted from legislation, statutes, guidelines or policies.

Compliance with the adopted performance criteria was initially assessed based on the application of design mitigation measures. Additional mitigation and management measures were then proposed for implementation in future phases of the Project. These proposed mitigation and management measures were nominated to:

- ▶ Achieve compliance with the adopted performance criteria, if required
- ▶ Demonstrate ARTC's commitment to avoiding or minimising potential impacts, as far as reasonably practicable.

#### 4.4.2 Risk assessment

The risk assessment method was applied to environmental values that might be impacted by the Project, and where impacts could not be quantified. This includes unknown or unpredictable impacts. Potential impacts are assessed in terms of how likely they are to occur, and the consequences if they do occur.

Likelihood and consequence criteria, and the resulting ARTC risk matrix are set out in Table 4.3, Table 4.4 and Table 4.5. The criteria are consistent with AS ISO 31000:2018 *Risk Management—Principles and Guidelines* (Standards Australia, 2018). Risk assessments have been documented in tabular form in the relevant EIS chapters.

TABLE 4.3: LIKELIHOOD CRITERIA

Likelihood	Description	Frequency of occurrence
Almost certain	Is expected to occur in most circumstances	Once per month
Likely	Will probably occur in most circumstances	Between once a month and once a year
Possible	Might occur at some time	Between once a year and once in 5 years
Unlikely	Could occur at some time	Between once in 5 years and once in 20 years
Rare	May occur in exceptional circumstances	Once in more than 20 years

**TABLE 4.4: CONSEQUENCE CRITERIA**

Risk category	Area of Impact	Potential consequence				
		Not significant	Minor	Moderate	Major	Extreme
<b>Safety</b>	Impact to people	No medical treatment required	Lost-time injury or medical treatment required	Serious injury	Single fatality	Multiple, but localised, fatalities
<b>Assets</b>	Engineering impacts and satisfying objectives	Up to 6 hours of track closure	>6 hrs to 24 hours of track closure	>24 to 48 hours of track closure	>48 hours to 5 days of track closure	>5 days of track closure
<b>Financial</b>	Total outturn cost impact	Up to 0.05% of program budget (i.e. up to \$5 m in \$10 b)	>0.05% to 0.5% of Program budget (i.e. >\$5 m to \$50 m in \$10 b)	>0.5% to 1.5% of Program budget (i.e. >\$50 m to \$150 m in \$10 b)	>1.5% to 5% of Program budget (i.e. >\$150 m to \$500 m in \$10 b)	>5% of Program budget (i.e. > \$500 m in \$10 b)
		Up to 0.1% of project budget (i.e. up to \$100k in \$100m)	>0.1% to 0.5% of Project budget (e.g. >\$100 k– \$500 k in \$100 m)	>0.5% to 2.5% of Project budget (e.g. >\$500k–\$2.5 m in \$100 m)	>2.5% to 10% of Project budget (e.g. >\$2.5 m–\$10 m in \$100 m)	>10% of Project budget (e.g. >\$10 m in \$100 m)
<b>Environment</b>	Environmental impact, heritage impact, flora and fauna, impact on archaeology and Indigenous cultural heritage, pollution and amenity (public)	Contained environmental damage—fully recoverable, no cost or ARTC action required	Isolated environmental damage—minimal ARTC remediation required	Localised/clustered environmental damage—requiring remediation	Considerable environmental damage—requiring remediation	Widespread long-term or permanent environmental damage—remediation required
<b>Regulatory</b>	Regulatory/legislative exposure, non-compliance and our Licence to Operate	Minimal or no regulatory involvement	Notice to produce information	Improvement notice or threatened action	Prohibition notice or fines	Prosecution of the company and/or its office holders
<b>Reputation</b>	Reputational exposure, customer dissatisfaction, stakeholder support, service, quality and reliability, public image and stakeholder attitudes	Isolated event able to be resolved (up to 7 days)	Management intervention required (>7 days to 3 months)	Tactical (business unit/divisional intervention required (>3 months to 18 months)	Strategic intervention required (>18 months to 3 years)	Corporate loss of shareholder and/or customer support—tangible business impact lasting > 3 years
<b>Schedule</b>	Time-based impacts	Influences schedule up to 1% of Program-approved schedule period	Influences schedule >1% to 2.5% of Program-approved schedule period	Influences schedule >2.5% to 5% of Program-approved schedule period	Influences schedule >5% to 10% of Program-approved schedule period	Influences schedule >10% of Program-approved schedule period
		Influences schedule up to 2% of Project-approved schedule period	Influences schedule >2% to 5% of Project-approved schedule period	Influences schedule >5% to 10% of Project-approved schedule period	Influences schedule >10% to 20% of Project-approved schedule period	Influences schedule >20% of Project-approved schedule period

**TABLE 4.5: RISK MATRIX**

Likelihood/consequence	Not significant	Minor	Moderate	Major	Extreme
<b>Almost certain</b>	Medium	Medium	High	Very high	Very high
<b>Likely</b>	Low	Medium	High	Very high	Very high
<b>Possible</b>	Low	Low	Medium	High	High
<b>Unlikely</b>	Low	Low	Low	Medium	Medium
<b>Rare</b>	Low	Low	Low	Low	Medium



### 4.4.3 Significance assessment

The significance assessment method was applied to environmental values that will be impacted by the Project, and where impacts cannot be quantified. The significance of a potential impact is assessed in terms of the sensitivity or vulnerability of the environmental value, and the magnitude of the potential impact.

The following sensitivity criteria (refer Table 4.6), magnitude criteria (refer Table 4.7) and significance matrix (refer Table 4.8) were adopted for significance assessments. Table 4.9 contains the definitions of significance assessments based on their sensitivity and magnitude characteristics.

**TABLE 4.6: SENSITIVITY CRITERIA**

<b>Sensitivity</b>	<b>Description</b>
<b>Major</b>	<ul style="list-style-type: none"> <li>▶ The environmental value is listed on a recognised or statutory state, national or international register as being of conservation significance</li> <li>▶ The environmental value is entirely intact and wholly retains its intrinsic value</li> <li>▶ The environmental value is unique to the environment in which it occurs. It is isolated to the affected system/area, which is poorly represented in the region, state, country or the world</li> <li>▶ It has not been exposed to threatening processes, or they have not had a noticeable impact on the integrity of the environmental value</li> <li>▶ Project activities would have an adverse effect on the value.</li> </ul>
<b>High</b>	<ul style="list-style-type: none"> <li>▶ The environmental value is listed on a recognised or statutory state, national or international register as being of conservation significance</li> <li>▶ The environmental value is intact and retains its intrinsic value</li> <li>▶ The environmental value is unique to the environment in which it occurs. It is isolated to the affected system/area, which is poorly represented in the region</li> <li>▶ It has not been exposed to threatening processes, or they have not had a noticeable impact on the integrity of the environmental value</li> <li>▶ Project activities would have an adverse effect on the value.</li> </ul>
<b>Moderate</b>	<ul style="list-style-type: none"> <li>▶ The environmental value is recorded as being important at a regional level, and may have been nominated for listing on recognised or statutory registers</li> <li>▶ The environmental value is in a moderate to good condition despite it being exposed to threatening processes. It retains many of its intrinsic characteristics and structural elements</li> <li>▶ It is relatively well represented in the systems/areas in which it occurs but its abundance and distribution are exposed to threatening processes</li> <li>▶ Threatening processes have reduced its resilience to change. Consequently, changes resulting from Project activities may lead to degradation of the prescribed value</li> <li>▶ Replacement of unavoidable losses is possible due to its abundance and distribution.</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>▶ The environmental value is not listed on any recognised or statutory register. It might be recognised locally by relevant suitably qualified experts or organisations (e.g. historical societies)</li> <li>▶ The environmental value is in a poor to moderate condition as a result of threatening processes, which have degraded its intrinsic value</li> <li>▶ It is not unique or rare and numerous representative examples exist throughout the system/area</li> <li>▶ It is abundant and widely distributed throughout the host systems/areas</li> <li>▶ There is no detectable response to change or change does not result in further degradation of the environmental value</li> <li>▶ The abundance and wide distribution of the environmental value ensures replacement of unavoidable losses is achieved.</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>▶ The environmental value is not listed on any recognised or statutory register and it is not recognised locally by relevant suitable qualified experts or organisations</li> <li>▶ It is not unique or rare and numerous representative examples exist throughout the system/area</li> <li>▶ There is no detectable response to change or change does not result in further degradation of the environmental value.</li> </ul>

**TABLE 4.7: MAGNITUDE CRITERIA**

Magnitude	Description
<b>Major</b>	An impact that is widespread, permanent and results in substantial irreversible change to the environmental value. Avoidance through appropriate design responses or the implementation of environmental management controls are required to address the impact.
<b>High</b>	An impact that is widespread, long lasting and results in substantial and possibly irreversible change to the environmental value. Avoidance through appropriate design responses or the implementation of site-specific environmental management controls are required to address the impact.
<b>Moderate</b>	An impact that extends beyond the area of disturbance to the surrounding area but is contained within the region where the Project is being developed. The impacts are short term and result in changes that can be ameliorated with specific environmental management controls.
<b>Low</b>	A localised impact that is temporary or short term and either unlikely to be detectable or could be effectively mitigated through standard environmental management controls.
<b>Negligible</b>	An extremely localised impact that is barely discernible and is effectively mitigated through standard environmental management controls.

**TABLE 4.8: SIGNIFICANCE MATRIX**

Magnitude/sensitivity	Major	High	Moderate	Low	Negligible
<b>Major</b>	Major	Major	High	Moderate	Low
<b>High</b>	Major	Major	High	Moderate	Low
<b>Moderate</b>	High	High	Moderate	Low	Low
<b>Low</b>	Moderate	Moderate	Low	Negligible	Negligible
<b>Negligible</b>	Moderate	Low	Low	Negligible	Negligible

**TABLE 4.9: SIGNIFICANCE CLASSIFICATIONS**

Magnitude	Description
<b>Major</b>	Arises when an impact will potentially cause irreversible or widespread harm to an environmental value that is irreplaceable because of its uniqueness or rarity. Avoidance through appropriate design responses is the only effective mitigation.
<b>High</b>	Occurs when the proposed activities are likely to exacerbate threatening processes affecting the intrinsic characteristics and structural elements of the environmental value. While replacement of unavoidable losses is possible, avoidance through appropriate design responses is preferred to preserve its intactness or conservation status.
<b>Moderate</b>	Results in degradation of the environmental value due to the scale of the impact or its susceptibility to further change even though it may be reasonably resilient to change. The abundance of the environmental value ensures it is adequately represented in the region, and that replacement, if required, is achievable.
<b>Low</b>	Occurs where an environmental value is of local importance and temporary or transient changes will not adversely affect its viability provided standard environmental management controls are implemented.
<b>Negligible</b>	Does not result in any noticeable change and the proposed activities will have negligible effect on environmental values. This typically occurs where the activities are located in already disturbed areas.

#### 4.4.4 Cumulative impact assessment

Chapter 8 to Chapter 21 within this EIS each include a cumulative impact assessment for the particular environmental values they are addressing. These assessments have then been collated into Chapter 22: Cumulative impacts.

The approach used to identify and assess potential cumulative impacts of the Project included:

- ▶ A review of the potential impacts identified within the EIS assessments. The environment at the time of the ToR is the baseline; prior impacts from past land use have not be considered.
- ▶ A register of assessable projects has been collated with timelines to demonstrate the temporal relationship between projects. This included:
  - ▶ Only 'state significant' or 'strategic' projects (i.e. coordinated projects under the *State Development and Public Works Organisation Act 1971* that are in the public domain as being planned, constructed or operated at the time of the ToR have been considered
  - ▶ Additional projects have been considered where they have been deemed to be of local significance, as identified through consultation with community groups and stakeholders, such as:
    - Current developments listed in Lockyer Valley Regional Council and Ipswich Regional Council Development Application databases
    - Confirmed development within Priority Development Areas and State Development Areas
    - Economic Development Queensland active projects
    - Community Infrastructure Designation projects
    - Facilities within the public register of environmental authorities
    - Department of Transport and Main Roads infrastructure projects
    - Private infrastructure facilities
    - Development in accordance with Regional Planning Interests
  - ▶ The Inland Rail projects immediately adjacent to the Project, being the Gowrie to Helidon and Calvert to Kagaru projects.
- ▶ Identification and mapping of the assessable projects and the areas of influence (Aol) of the aspect being considered. Current operational projects and commercial or agricultural operations that are in the Aol around the Project are accounted for in the corresponding technical baseline studies (e.g. air quality, noise, social, economic). The Aol types considered in the assessment were the following:
  - ▶ Derived by assessment—the Aol is determined for each environmental value by the corresponding impact assessment, as undertaken to address the relevant component of the ToR
  - ▶ Administrative—the Aol is determined by recognised administrative boundaries (e.g. LGAs, localities)
  - ▶ Designated area—the Aol is determined by the recognised physical extent of the Project during construction and operation.
- ▶ Where there is a potential overlap in impacts (either spatially or temporally), a cumulative impact assessment has been undertaken to determine the nature of the cumulative impact:
  - ▶ Where possible, the assessment method has been quantitative in nature; however, qualitative assessment has also been undertaken for certain environmental values
  - ▶ Where quantitative assessment was possible, the significance of impact has been assessed in comparison to the same criteria or guidelines as adopted by the relevant technical impact assessments
  - ▶ Where impacts are expressed qualitatively, the probability, duration, and magnitude/ intensity of the impacts have been considered as well as the sensitivity and value of the receiving environmental conditions.
- ▶ An assessment matrix method (further detailed within Table 4.10) has been used to determine the significance of cumulative impacts with respect to beneficial or detrimental effects.
- ▶ Where cumulative impacts are potentially 'medium' or 'high' significance, additional mitigation measures are proposed, beyond those already proposed in the relevant technical impact assessments.

Following the identification of each potential cumulative impact, relevance factor scores of 'low', 'medium' and 'high' were determined with consideration to impacts, in accordance with the assessment matrix in Table 4.10.

The significance of the impact approach used professional judgement to select the most appropriate relevance factor for each aspect in Table 4.10.

TABLE 4.10: ASSESSMENT MATRIX

Aspect	Relevance factor		
	Low	Medium	High
Probability of impact	1	2	3
Duration of impact	1	2	3
Magnitude/intensity of impact	1	2	3
Sensitivity of receiving environment	1	2	3

The sum of the relevance factors determines the impact significance and consequence, which are summarised in Table 4.11. For example, if an environmental value such as groundwater is considered to have a probability of impact of 2, duration of impact of 3, magnitude/intensity of impact of 1 and a sensitivity of receiving environment of 1, the significance of impact would be Medium (2+3+1+1 = 7).

TABLE 4.11: IMPACT SIGNIFICANCE

Impact significance	Sum of relevant factors	Consequence
Low	1–6	Negative impacts need to be managed by standard environmental management practices. Monitoring to be part of general project monitoring program.
Medium	7–9	Mitigation measures likely to be necessary and specific management practices to be applied. Targeted monitoring program required, where appropriate.
High	10–12	Alternative actions should be considered and/or mitigation measures applied to demonstrate improvement. Targeted monitoring program necessary, where appropriate.

Full details of the cumulative impact assessment, including projects considered as part of the assessment, are presented in Chapter 22: Cumulative impacts.

### 4.5 Mitigation and management measures

Mitigation and management measures are designed to protect environmental values and sensitive receptors, achieve established environmental performance objectives, and enhance any positive impacts as a result of the Project. Initial and additional mitigation and management measures have been incorporated into all three assessment methods, as summarised in Figure 4.2.

Initial mitigation measures are steps taken during the planning and design phases to avoid or minimise potential impacts. Proposed mitigation measures are in addition to initial measures considered during design to further avoid or minimise impacts through future Project phases, being:

- ▶ Detailed design
- ▶ Pre-construction
- ▶ Construction
- ▶ Operation
- ▶ Decommissioning (as related to construction works).

In some instances, residual impacts are anticipated after the application of additional measures.

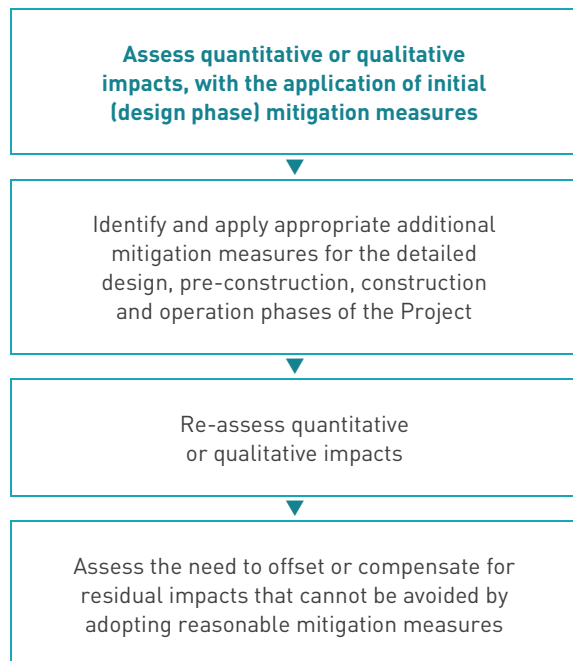


FIGURE 4.2: PROCESS FLOW CHART (ASSESSMENT OF IMPACTS AND APPLICATION OF MITIGATIONS)

Mitigation and management measures (initial and proposed) have been documented in tables form in the relevant EIS chapters. The detailed design, pre-construction and construction and commissioning mitigation measures have also been documented in the draft Outline EMP.

#### **4.5.1 Draft Outline Environmental Management Plan**

The Project's draft Outline EMP, which addresses the requirements of the ToR, and applicable legislation, statutes, guidelines and policies, is in Chapter 23: Draft Outline Environmental Management Plan.

The draft Outline EMP establishes how any adverse residual impacts as a result of the Project will be managed during each Project phase. It also establishes environmental objectives, performance criteria, and a framework for continuous management, monitoring, reporting and training of site personnel.

Mitigation and management measures proposed for each environmental aspect identified in Chapter 8 to Chapter 21 are documented in the draft Outline EMP.

The draft Outline EMP will be implemented and delivered as a proponent commitment (refer Appendix E: Proponent Commitments).

#### **4.6 Community and stakeholder consultation**

The assessment methodologies adopted for the purpose of this EIS have been presented to, and discussed with, relevant regulatory agencies. A Project of this size and significance requires a far-reaching communication and stakeholder engagement approach to provide opportunities for involvement at all levels. Input from a variety of key stakeholders and community members is required to understand constraints, values and impacts.

The overarching purpose of the community and stakeholder engagement program is to:

- ▶ Raise awareness about the Project, including the need for the Project, its benefits and the process undertaken to develop the reference design and EIS
- ▶ Verify the appropriateness of impact assessment methods adopted for the EIS (refer Section 4.4)
- ▶ Provide stakeholders with opportunities to inform investigations being undertaken for the reference design and EIS (local values and issues)
- ▶ Inform government agencies, stakeholders and the community about the progress of the Project and to seek input into the development of the reference design and EIS
- ▶ Understand stakeholder and community issues and, where reasonable, address issues raised.

Stakeholder and community feedback and comments received through the consultation process has informed the preparation of the EIS including:

- ▶ Identification of community values and local conditions proximal to the Project
- ▶ Assessment of potential benefits and impacts of the Project's construction and operation
- ▶ Development of strategies to minimise or avoid potential impacts and maximise or enhance potential Project benefits.

The consultation program was structured to inform individuals and groups directly and indirectly affected by the Project. The process ensured input from, but not necessarily limited to, the following:

- ▶ Stakeholder groups with specific interests in the Project, such as Traditional Owners, community groups (via Community Consultative Committee meetings— members and observers), ARTC's online Social PinPoint tool; ARTC's online CollabMap tool; and relevant industry associations
- ▶ Government agencies, departments and referral bodies—including both state and federal level
- ▶ Local government agencies—multiple regions/ areas considered, including those with either a regulatory or an advisory role in the design, construction and/or operation of the Project.

Stakeholder and community engagement activities undertaken during development of the EIS are discussed in Chapter 5: Stakeholder engagement.