



Adani Mining Pty Ltd

# **NORTH GALILEE BASIN RAIL PROJECT**

## Environmental Impact Statement

### Chapter 21 Environmental management

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# 21. Environmental management

## 21.1 Purpose of this chapter

This chapter describes the environmental management approach to be adopted throughout the life of the NGBR Project from planning and design through to construction and operation. Decommissioning and rehabilitation of temporary and permanent works has been considered where necessary within the construction and operational phases of the project. The following sections explain the overall context of the NGBR Project environmental management plans and how elements such as approval conditions and proponent commitments will be incorporated.

Section 21.2.1 provides an overview of the environmental management framework

## 21.2 Environmental management process

### 21.2.1 Overview

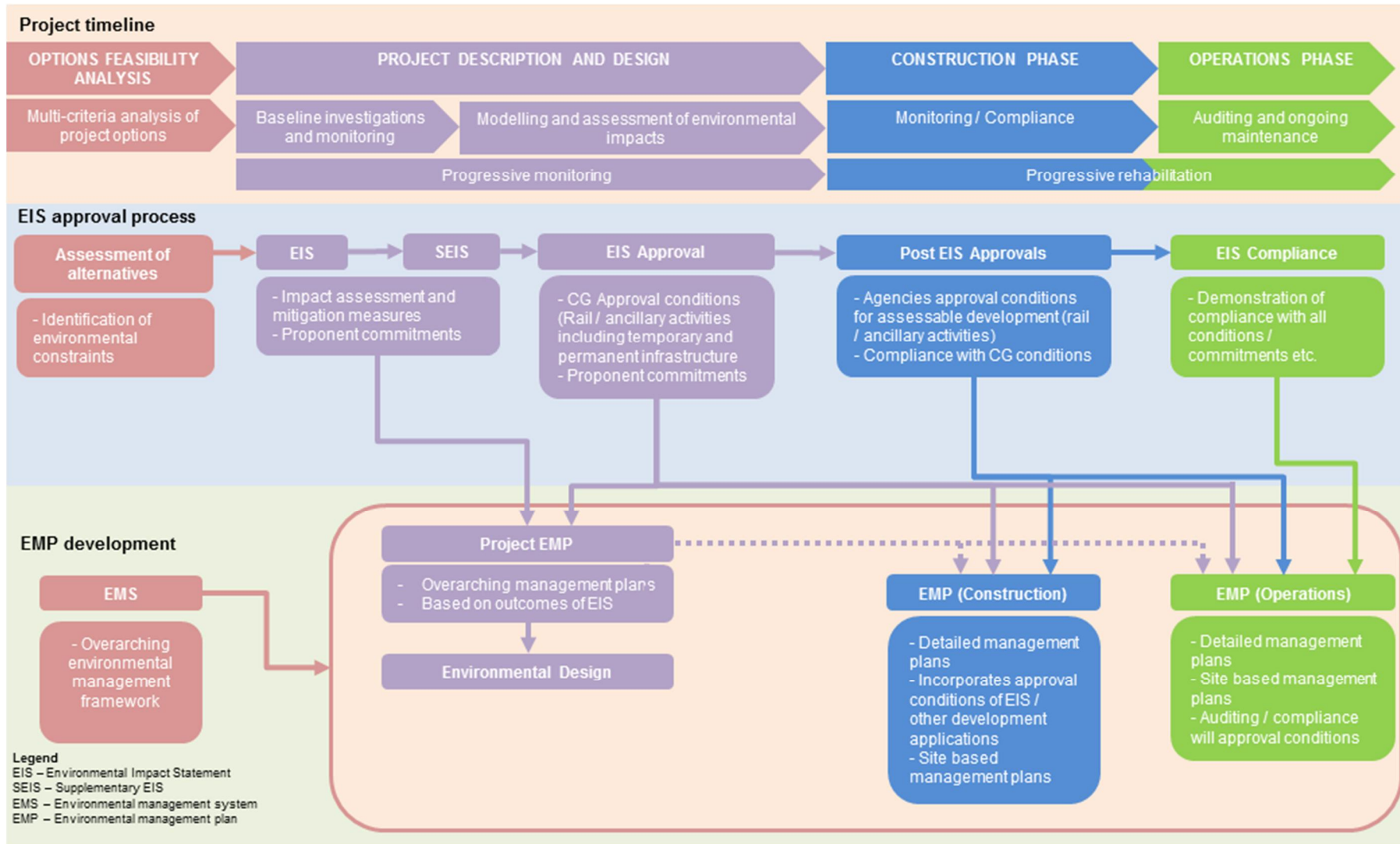
Impacts associated with the NGBR Project will be managed in accordance with a project-specific environmental management system (EMS). The EMS will provide provisions for identifying roles and responsibilities, staff training, monitoring and internal auditing and will generally guide the development of the NGBR Project environmental management plans (EMPs)

The NGBR Project will be managed at each phase of the project in accordance with a specific EMP as follows:

- Planning and design phase – Project EMP
- Construction phase – EMP (Construction)
- Operational phase – EMP (Operations).

Figure 21-1 illustrates the context of each EMP in relation to the NGBR Project phases as well as the relationship to the Environmental Impact Statement (EIS) approval conditions and proponent commitments. These are described in more detail in Sections 21.2.2 to 21.2.5.

Figure 21-1 Context of EMP development



### 21.2.2 Relationship to environmental impact statement

The outcomes of the assessment undertaken for the NGBR Project EIS will be captured in the NGBR Project EMP. Notably, the relevant impacts identified throughout the EIS and the respective mitigation measures and proponent commitments will be summarised into a specific management plan for each environmental aspect (e.g. noise and vibration) this is discussed further in Section 21.2.4.

### 21.2.3 Environmental management system

An EMS will be developed and implemented on the NGBR Project. The EMS will outline the general provisions to consistently manage environmental hazards, risk and approval requirements and provides guidance for the development of EMPs to be implemented throughout the life of the NGBR Project. The EMS forms an overarching framework and will be applicable to the NGBR Project.

Currently, Adani have a functioning Health, Safety and Security (HSS) System. This system includes a comprehensive list of policies, procedures and guidelines, some of which will be relevant to the NGBR Project. The EMS will be developed in accordance with the provisions of AS/NZS ISO 14001:2004 Environmental Management Systems – Requirements with Guidance for Use and will be integrated with existing management processes, including the HSS Management System.

The systems based approach incorporates Adani's environmental policy statement and makes general provisions for specific components of the NGBR Project EMPs (refer appendix A of Volume 2 Appendix P Environmental management plan framework). These components will be incorporated into the Project EMP and will include but not be limited to the following:

- Environmental objectives and targets
- Roles and responsibilities
- Training and awareness
- Incident and complaints management
- Environmental inspections, monitoring and corrective actions
- Communication plans
- Document control and records
- Review and continuous improvement
- Reporting.

### 21.2.4 Project EMP

A Project EMP has been developed for the NGBR Project and incorporates the outcomes of the assessment undertaken in the EIS. The Project EMP is provided in Volume 2 Appendix P Environmental management plan framework.

#### **Environmental management framework**

An environmental management framework has been presented as part of the Project EMP to inform project planning, design, construction and operations. The environmental management framework identifies the overarching components of the Project EMP and will serve to guide the implementation of the plan during planning and design and further development of the EMP

(Construction) and EMP (Operations). The components of the environmental management framework include:

- Environment and Sustainability Policy
- Planning, objectives and legal obligations
- Resources, roles, responsibilities and authorities
- Competence, training and awareness
- Communication, consultation and involvement
- Documentation, document control and records
- Operational controls
- Emergency preparedness and response
- Monitoring, inspections and audits
- Incident management
- Complaints management
- Non-conformity, corrective action and preventative action
- Environmental reporting
- Management review and continuous improvement.

#### **Relationship to environmental design**

The Project EMP provides overarching environmental objectives and performance criteria to be achieved throughout the life of the NGBR Project and incorporates the management measures from the EIS which are to be implemented during the planning and design of the NGBR Project. These management measures will ensure that the NGBR Project is designed to minimise adverse impacts to the environment during construction and operations phases. Where significant impacts are expected to occur, further management and monitoring programs have been identified for the construction and operations phases. These management measures are outlined in the Project EMP and will be subsequently incorporated into the development of the EMP (Construction) and EMP (Operations).

#### **Environmental aspects and structure of management plans**

The Project EMP identifies the aspects of the NGBR Project which are likely to have significant environmental impacts as identified in the EIS and subsequently require consideration during the planning phase and further management and monitoring during the construction and operations phases. The Project EMP outlines the proposed management plans for the relevant environmental aspects and impacts associated with the NGBR Project, which will inform development of the EMP (Construction) and EMP (Operation). These management plans provide environmental management objectives for each aspect and outlines management measures to be implemented, the timing and the responsibility for each, across the NGBR Project. The general structure of each management plan is outlined in Table 21-1.

Table 21-1 Structure of management plans

Element	Description of Content
Existing environmental values and potential impacts	A description of the environmental values likely to be affected by the NGBR Project during the construction and operational phases.
Management objective(s)	The overarching objective to be achieved for the environmental value likely to be affected by the NGBR Project.
Performance criteria	Measurable outcomes or indicators prescribed to gauge whether the management objectives are being met.
Management and mitigation measures	The strategies, tasks or methods proposed to achieve the performance criteria. This section provides the measures relevant to design, construction and operation.
Monitoring requirements and corrective actions	The proposed monitoring activities to measure the performance criteria against relevant thresholds or trigger values and the corrective actions to be implemented where certain performance criteria are not met.

The respective mitigation measures identified within this EIS have been incorporated into management plans within Volume 2 Appendix P Environmental management plan framework, under the following headings.

- Air quality management
- Flora and fauna management
- Greenhouse gas emissions and energy management
- Soils, erosion and sediment management
- Waste management
- Noise and vibration management
- Surface water and groundwater management
- Scenic amenity and lighting management
- Traffic management
- Social management
- Cultural heritage management
- Hazardous substances management
- Emergency management

Commitments made within this EIS are summarised in Volume 2 Appendix S Commitments.

### 21.2.5 EMP (Construction) and EMP (Operation)

The EMP (Construction) and EMP (Operation) will set out a detailed procedure for managing environmental impacts during the construction and operation of the NGBR Project respectively and will be developed in accordance with the objectives, performance criteria, management measures and monitoring requirements stipulated in the Project EMP. The EMP (Construction) and EMP (Operation) will also incorporate the approval conditions issued for the NGBR Project and any commitments made by Adani in the EIS.

Where it was determined in the EIS, that particular areas along the NGBR Project are environmentally sensitive or where the proposed construction activities demonstrate a high risk for environmental damage, a site-specific, site based management plan will be prepared.

#### **Site based environmental management plans**

Where required, the EMP (Construction) and EMP (Operation) will identify the need for a site based management plan(s) for specific activities of the NGBR Project. For example, a waterway crossing with the potential to result in significant bank erosion or degradation to water quality will have its own site based management plan to manage the activities associated with the construction of that crossing structure.

A site based management plan will be developed to accompany the respective permit / approval application where required for certain (generally high-risk) activities. Once the permit / approval has been granted, the site based management plan will be updated to incorporate any relevant conditions of the approval.