



**Appendix B**  
Construction environmental management plan



# Construction Environmental Management Plan

DRAFT FOR EXAMPLE  
PURPOSES

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# 1 Introduction

## 1.1 Purpose

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The purpose of this Environmental Management Plan (EMP) is to provide guidelines for the management of environmental aspects during the course of the construction of the Queensland Hunter Gas Pipeline.

This document has been developed in accordance with the Australian Pipeline Industry Association Code of Environmental Practice for Onshore Pipelines (APIA Code) and the conditions of any environmental approval obtained for the Project. It is set out by functional activity rather than environmental aspect for ease of implementation.

The EMP provides a framework for control of Project impacts.

## 1.2 Environmental policy

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QHGP has a high level of commitment to the environment as demonstrated in its Environmental Policy (refer Attachment 1).

# 2 Responsibilities

This section sets out the specific environmental responsibilities of key Project positions.

## 2.1 Project manager

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Responsible for overseeing the implementation and standard of environmental management practices applied to the project. The Project Manager will receive a monthly environmental report from the Construction Manager, detailing pipeline construction and installation performance. Where necessary, the Project Manager can require the modification of existing safeguards contained within the EMP or the adoption of additional environmental safeguards. The Project Manager will liaise with the client and various other regulatory authorities as required.

## 2.2 Construction manager

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Responsible for determining the most appropriate times to cross watercourses, monitoring the success of environmental safeguards and determining the most appropriate additional environmental controls at any particular location. The Construction Manager will also be responsible for ensuring that weekly and monthly inspections of the performance of the construction of the pipeline are completed. The Construction Manager will report the findings to the Project Manager at weekly and monthly intervals.

## 2.3 Site engineers

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Responsible for regularly checking the implementation and quality of implementation, of all environmental safeguards. The Site Engineer will also maintain the Complaints Register (refer and report to the Construction Manager on a daily basis).

## 2.4 HSE manager/officer

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Responsible for overseeing the implementation of environmental safeguards and for regular monthly inspections and assisting with weekly inspections during the construction period. Inspections will include but not be limited to environmental aspects that have been identified as requiring monitoring, such as corridor clearing, watercourses, fauna monitoring, waste disposal and the integrity of erosion and sediment control measures. The HSE Manager/Officer will advise the Project Manager on environmental issues as required, and will co-ordinate / conduct environmental audits.



## 2.5 Subcontractor

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Where appropriate and practical, the selection criteria for a subcontractor includes an assessment of their environmental performance on previous projects.

Responsible for undertaking the contracted works in a way which meets regulatory requirements and which is consistent with relevant environmental licences, approvals and guidelines, and which achieves environmental specifications and commitments.

## 2.6 Staff

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All staff are responsible for the environmental performance of their activities.

# 3 Training

All Managers are responsible for ensuring that personnel under their control have the requisite competencies, skills and training to carry out their assigned tasks and for identifying additional training and competency requirements. Managers are responsible for ensuring training records are maintained.

Prior to the commencement of construction the Project Manager, in conjunction with environmental staff, will approve an induction program to be delivered to all personnel and subcontractors personnel involved in the project prior to, or as soon as practical after, mobilization. The program will address environmental safeguards, safety, emergency procedures and incident reporting and management.

The Project Manager is responsible for ensuring that records are maintained of all Project relating training.

# 4 Auditing

Audits provide lead indicators for potential incidents and provide important information for corrective action and review of procedures. Audits by an external party will be conducted for this Project at the frequencies set out in Table 4-1. Issues identified during audits will be recorded and corrective action implemented. Audit results will be made available, with the agreement of the General Manager, to government agencies and / or clients on request.

**Table 4.1 Audit schedule**

No	AUDIT	TIMING *
1	EMP Compliance	Within 6 weeks of commencement of construction
2	EMP Compliance and review of corrective actions from Audit 2	4th month of construction
3	Construction completion and review of corrective actions Audit 2	Within 6 weeks of completion of construction

# 5 Incident management

Incident reporting (lag indicators) will be implemented to record any safety or environmental non-conformances or incidents. Incidents will be investigated and followed up and, where relevant, corrective actions nominated.

# 6 Environment management plans

## 6.1 Access and worksite preparation (example only)

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EXAMPLE ONLY BELOW - TO BE REVISED - Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted.

### 6.1.1 Environmental values

The environmental values that could be affected by access and worksite preparation are:

- The existing biodiversity, ecological processes, and land quality.
- The existing integrity of soils.

### 6.1.2 Potential impacts

The potential impacts associated with access and site preparation works are:

- Clearing of vegetation outside approved areas.
- Damage to cultural material.
- Introduction of weeds or diseases.

### 6.1.3 Protection objective

To utilise, to the extent practicable, existing cleared areas and access tracks so as to minimise the impact on vegetation and minimise potential for weed and / or disease invasion.

No access or worksites in identified areas of significant vegetation or habitat (refer alignment sheets).

### 6.1.4 Control measures

The control measures listed here will be implemented to ensure the identified environmental values are protected during access and site preparation works:

- Use existing roads and tracks where practicable.
- Any new access tracks to be approved by the HSE Manager.
- Base the location of campsites, storage and additional work areas and new access tracks, to the extent practicable, on the following criteria:
  - Avoiding unduly steep or rugged terrain.
  - Avoiding areas of potential ground movement.
  - Avoiding large and connected forested patches as far as practical.

- Avoiding/minimising impacts on sensitive vegetation, erosion prone soils and watercourse crossings (refer constraints mapping Appendix A).
- Avoiding significant natural, Aboriginal or historic heritage sites in accordance with any approved CHMP.
- Identify any environmentally sensitive areas from the environmental assessment and implement the agreed management measures for these locations.
- No clearing of land for camp sites, access tracks or work areas in reserves, wetlands, state forests, good quality agricultural land or identified sensitive areas (refer EA).
- Provide property access for landholders at all times.
- Include Cultural Heritage clearances, in accordance with CHMP, in site selection.
- Ensure that crossings of ephemeral watercourses where water is present is carried out at 'run' or 'riffle' sections if practical.
- Use only designated access tracks (this applies to all construction vehicles, including personnel vehicles).
- All vehicles and personnel to remain on the ROW, unless at designated work areas.
- Provide temporary gates where fences are breached during construction.
- Reinstate all fences and gates post construction.
- Reinstate access tracks at the completion of construction in accordance with client requirements.
- Weed management in accordance with **Section 7.8**.

#### **6.1.5 Approval conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## **6.2 Campsite management**

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### **6.2.1 Environmental Values**

### **6.2.2 Potential Impacts**

### **6.2.3 Protection Objectives**

### **6.2.4 Control Measures**

### **6.2.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.3 Clear and grade

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EXAMPLE ONLY BELOW - TO BE REVISED - Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted.

### 6.3.1 Environmental Values

- The existing biodiversity, ecological processes, and land quality.
- The existing integrity of soils.

### 6.3.2 Potential Impacts

- Erosion and sedimentation.
- Land contamination.
- Compromised rehabilitation.
- Spread of weeds and/or diseases.

### 6.3.3 Protection Objectives

- To manage pipeline activities so as to minimise impacts to the existing biodiversity, ecological processes and land quality through implementing control strategies that will:
  - Minimise soil erosion.
  - Minimise sedimentation of land.
  - Develop a stable, vegetated easement.

### 6.3.4 Control Measures

#### *General*

- Protect topsoil, root and seed stock by:
  - Topsoil – separation; stockpiling (outside any drainage line); grading away from watercourses; respreading last; scarification; and brush spreading to protect the topsoil.
  - Root – use of graders rather than bulldozers to avoid ripping out the root system; route selection to avoid areas of side slope, thus minimising root stock clearance.
  - Seed – separation and stockpiling of topsoil to preserve seed stock; brush spreading to protect the topsoil and provide additional seed stock; no burning of native vegetation.
- Minimise the potential for bulldust creation, in susceptible soils, by:
  - Watering a drive strip immediately after grading to enable compaction and a firm crust to form.
  - Limiting vehicle movements to the watered strip ahead of pipe delivery.
  - Reducing vehicle speed
  - Regular on-going watering
- In the event that bulldust occurs:

- Implement a detour around the affected area.
- Create additional temporary workspace.
- Water to repair the area.
- Rehabilitate as best as possible.
- Wait for natural rainfall to reset the surface then scarify and seed.
- Minimise work during wet weather as it has limited production benefit and consequential rehabilitation costs.
- Ensure the relevant government approvals and permits have been obtained for the crossing of all watercourses prior to construction.

#### *Flora*

- Flag individual significant plant species (including habitat trees) which are located within the easement and that must be avoided during construction.
- Flag areas where clearing is to be narrower for any reason (e.g. protected ecosystems).
- Construction of physical barriers around significant vegetation areas in order to restrict access and avoid disturbance.
- Clearing width not to exceed [insert the approved clearing width] m.
- Clearing width not to exceed [insert the approved clearing width] m in sensitive areas.
- No removal of protected species without relevant permit.

#### *Erosions Control*

- If constructing in areas where rainfall may occur during the construction period:
  - Install and maintain temporary erosion and sediment control measures (e.g. contour banks, temporary or permanent earth banks, silt fences) during construction, particularly around the toe of topsoil stockpiles at creek crossings, and between watercourses and the construction area.
  - Install diversion banks at the crest of the stream approach slope to divert sheet flow away from backfilled trenches.
- Ensure ROW and access roads have properly constructed turn-off drains.

#### *Approval Conditions*

- [Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]



## 6.4 Trenching

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**6.4.1 Environmental Values**

**6.4.2 Potential Impacts**

**6.4.3 Protection Objectives**

**6.4.4 Control Measures**

**6.4.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.5 Horizontal Directional Drilling

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**6.5.1 Environmental Values**

**6.5.2 Potential Impacts**

**6.5.3 Protection Objectives**

**6.5.4 Control Measures**

**6.5.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.6 Pipe Stringing and Bending

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**6.6.1 Environmental Values**

**6.6.2 Potential Impacts**

**6.6.3 Protection Objectives**

**6.6.4 Control Measures**

**6.6.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.7 Welding

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**6.7.1 Environmental Values**

**6.7.2 Potential Impacts**

**6.7.3 Protection Objectives**

**6.7.4 Control Measures**

**6.7.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.8 Laying in and Backfilling

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**6.8.1 Environmental Values**

**6.8.2 Potential Impacts**

**6.8.3 Protection Objectives**

**6.8.4 Control Measures**

**6.8.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.9 Hydrotesting

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**6.9.1 Environmental Values**

**6.9.2 Potential Impacts**

**6.9.3 Protection Objectives**

**6.9.4 Control Measures**

**6.9.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.10 Reinstatement

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**6.10.1 Environmental Values**

**6.10.1 Potential Impacts**

**6.10.2 Protection Objectives**

**6.10.3 Control Measures**

**6.10.4 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.11 Cultural Heritage Management

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**6.11.1 Environmental Values**

**6.11.2 Potential Impacts**

**6.11.3 Protection Objectives**

**6.11.4 Control Measures**

**6.11.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.12 Weed Management

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**6.12.1 Environmental Values**

**6.12.2 Potential Impacts**

**6.12.3 Protection Objectives**

**6.12.4 Control Measures**

**6.12.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.13 Waste Management

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**6.13.1 Environmental Values**

**6.13.2 Potential Impacts**

**6.13.3 Protection Objectives**

**6.13.4 Control Measures**

**6.13.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

## 6.14 Hazardous Materials Management

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**6.14.1 Environmental Values**

**6.14.2 Potential Impacts**

**6.14.3 Protection Objectives**

**6.14.4 Control Measures**

**6.14.5 Approval Conditions**

[Any environmental approval is to be reviewed and all measurable indicators that apply to this activity are to be inserted]

# Attachments

Attachment 1 Environmental Policy

